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ABSTRACT

The objectives of the reported conference were: 1) to determine what significant changes are occurring in campground management; 2) to view demonstration campground areas and discuss related information dissemination efforts; 3) to determine what campground research is presently underway, and whether more is needed; and, 4) to determine possible sources of information for persons interested in improving camping opportunities. (Editor/JD)

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PROCEEDINGS

of the conference on

CAMPGROUNDS AND CAMPING 1980:

TRENDS, RESEARCH, FUTURE NEEDS

November 5-8, 1979

Land Between The Lakes
Brandon Spring, Tennessee

Sponsored by

Department of Forestry
Southern Illinois University at Carbondale

and

Land Between The Lakes
Tennessee Valley Authority

and

Office of Recreation and Park Resources
Cooperative Extension Service
University of Illinois, Urbana

in cooperation with

The Division of Continuing Education
Southern Illinois University at Carbondale

FOREWORD: CONFERENCE OVERVIEW

The title for this conference could have been CAMPGROUNDS AND CAMPING: WHO CARES? Campgrounds and camping in campgrounds have come to be taken for granted. Other pressures on recreation planners and managers have focused attention elsewhere during the past decade.

There now seems to be a reawakening of interest in campgrounds and camping. Many professional recreation managers and planners visit Land Between the Lakes, a Tennessee Valley Authority national outdoor demonstration area in western Kentucky and Tennessee. They come to view innovations in campground development and maintenance, and in camping programs.

This conference grew out of these indications of interest. It was designed to determine how widespread this interest was, what were some probable causes of this interest and concern, and what can be done to improve conditions for modern-day campers. The objectives of the conference were outlined as:

1. To determine what significant changes are occurring in campground management today.

2. To view demonstration campground areas and discuss related information dissemination efforts.

3. To determine what campground research is presently underway, and whether more is needed.

4. To determine possible sources of information for persons interested in improving camping opportunities.

The conference, and these proceedings, were organized as four sessions: trends in campgrounds and camping, research overview, future needs for improving camping, and research papers. These sessions were organized to relate to the objectives above, with the notation that objective 2 was handled by two afternoon field trips to Land Between the Lakes demonstration camping areas.

What was the outcome of this meeting? What was learned? Where do we go from here?

Objective No. 1: Significant Changes? Many recreation specialists appear to view campgrounds as static entities. Yet Wilbur LaPage's paper in Session II documents many substantive changes that have occurred in camping and campers during the past decade. Although it is difficult to define a 'campsite,' he estimates that there are approximately 16,000 campgrounds (9,000 private, 7,000 public in the U.S.). Camping growth in numbers of campers has slowed in recent years, but days camping

per trip appears to have increased. Curtis Fuller in his Session III paper suggests that the nature of recreation camping vehicles is changing to smaller, less self-contained units. Dick Cottrell's paper reflects his long experience with campground development and his observations during many current trips. He sees deteriorating conditions in many camps, poor camp planning in new or rehabilitation efforts, and lack of information dissemination to improve current situations. Camper acceptance of campground reservation systems was discussed by Art Magill.

Objective No. 2: Demonstration Camps? Field trips to Land Between the Lakes demonstration recreation areas (where campground development improvements and other innovations are actively worked with on a continuing basis) provided insights into many ways to improve camping opportunities. Two papers in Session I discuss important improvements: John Hultsman's paper on programming activities for campers has implications for more enjoyment of camping trips by all family members, and Hultsman and Cottrell's paper on "defined site" development offers psychological benefits to campers of defining their 'territory' and lowers maintenance costs of concentrating use impacts.

Objective No. 3: Research Efforts? The numerous campground and camping research efforts of the 1960's appear to have been largely replaced by other recreation research topics in the 1970's. Wilbur LaPage maintains a continuing camping research interest at the Northeastern Forest Experiment Station for USDA Forest Service. The U.S. Army Corps of Engineers began a research effort through their Waterways Experiment Station in Vicksburg, Mississippi in 1978. Some scattered research efforts at universities are indicated by papers in Session IV.

Objective No. 4: Sources of Information? With a resurgence of interest in campgrounds and camping, it has been noted that the considerable research literature is very scattered, much of it out-of-print, and with no systematic reporting of new findings (especially in useful form for persons interested in applying results). John Burde's paper in Session II describes the situation. This also has implications for difficulties in improving recreation management training concerning campgrounds and camping, as Doug McEwen notes in Session III.

Where do we go from here? An important first step may be to gather the considerable research literature and organize it into useful form. This effort has begun with funding provided by Tennessee Valley Authority-Land Between the Lakes for research literature summarization to be done at Southern Illinois University-Carbondale. This central collection and organization of campground and camping information should be especially useful for dissemination in relation to the national recreation demonstration role of Land Between the Lakes.

The answer to the question "Campgrounds and Camping: Who Cares?" was indicated by the attendance of persons from 20 different states at the conference. They represented 6 different federal agencies, state agencies, private campground owners, recreation managers, planners, designers, consultants, researchers, campground directory publishers, extension specialists, power companies, camping equipment manufacturers, students, and university educators. Our intention was to get together a mix of people in a discussion-oriented setting with field trip opportunities nearby.

The success of this effort was due to cooperative efforts of many individuals. In particular, Dick Cottrell of Land Between the Lakes-Tennessee Valley Authority and Bob Espeseth, Recreation Extension Specialist at the University of Illinois-Champaign provided their considerable experience in helping organize the conference. Wilbur LaPage and J. Alan Wagar, longtime outdoor recreation researchers with the U.S. Forest Service, offered helpful suggestions about the program. Frank Holland and Ray Nall as managers of Land Between the Lakes provided for use of excellent conference facilities. Harold Engelking of Southern Illinois University handled details of setting up the conference: brochures, bus transportation, registration, etc. John and Joan Titre helped with details such as operating tape recorders during the conference. Finally, the contributions of knowledgeable speakers and the enthusiastic discussion of the conference participants made this a thoroughly enjoyable conference.

Let us hear from you if these readings provoke ideas or comments on ways to further the state-of-the-art.

Kenneth Chilman
Associate Professor
Department of Forestry
Southern Illinois University
Carbondale, IL 62901

Douglas McEwen
Assistant Professor
Department of Recreation
Southern Illinois University
Carbondale, IL 62901

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SESSION I

TRENDS/WHAT'S HAPPENING NOW WITH CAMPGROUNDS AND CAMPING?

To open our discussions of the state-of-the-art, we began with the reminder by DICK COTTRELL that campgrounds across the country appear to exist in a state of benign neglect. Observations of campgrounds of various types indicate many deficiencies.

A very basic deficiency in public camping opportunities may be the attitudes of campground managers toward the camping visitors. BOB PRAUSA informed us of the conscious effort instituted by the U.S. Forest Service to improve that relationship, and of some practical applications of that effort.

An outstanding innovation to improve camper enjoyment has been programming activities for campers. JOHN HULTSMAN told us how the Tennessee Valley Authority at Land Between the Lakes initiated this low-cost opportunity for campers, and some of the implications for improving camping experiences for teen-agers and other frequently ignored clientele.

Then ART MAGILL presented the notion of campground reservation systems as a service approved by participating campers, rather than just a restrictive technique employed by managers. He outlined the experience with reservation systems at some large campgrounds in California, and his surveys of participating campers to determine their high level of acceptance and suggestions for improvement.

The papers outlined above indicate a few of the things going on in campgrounds and camping today. Others, such as efforts for improving security or reducing vandalism, could have been added if more time had been available.

These papers indicate items to consider if a conscious and serious effort is made to improve the quality of recreational camping experiences. To make these items operational for particular situations, management objectives need to be clearly specified. The process of objective-setting is more complex than generally recognized, but CHILMAN and PIERCEALL point out specific things that can be done to achieve better objectives.

Finally, it should be noted that COTTRELL and HULTSMAN have developed and promoted specific physical campsite designs to (1) improve camping experiences for visitors, and (2) substantially reduce maintenance problems and costs. The "defined site" concept serves as "property lines" (territorial identity) and contains impacts on a reinforced site.

THE MANY CAMPGROUNDS THAT WE HAVE

Richard L. Cottrell[1/]

Why are we having a campgrounds and camping conference? Because there exist thousands of campgrounds on public and private lands throughout this country. And, even as campgrounds receive limited management attention, millions of recreation visitors form their opinions of public agencies and resource management during time spent camping in these campgrounds. I believe that we are performing poorly in providing and managing these camping opportunities.

Consider the following observations. They stem from 20 years of work with campground development and management. And from what I've seen, experienced, heard, and found in visiting all sorts of public and private parks during the last 2 1/2 years in 20 states and 4 foreign countries. What I've seen angers and frustrates me! In order to wake you up try these on for size:

--I've seen poorly designed, empty campgrounds.

--I've seen campgrounds where only the vandals and rowdies are safe.

--I've seen chance--not conscientious planning--gain the upper hand.

--I've seen, in our provision of (or lack of) special campground programs, an apparent (though perhaps unconscious) effort to alienate family members from one another.

By now I should have your attention. If so, let's get on with the general observations concerning public and private family campgrounds.

First, let's talk about research:

--I hear and see too much continued research emphasis on carrying capacity, research models, planning systems, and needs surveys rather than how researchers can seriously help managers.

1/ Senior Recreation Specialist, Tennessee Valley Authority, Land Between the Lakes, Kentucky.

--I see continued design of areas with no camper input.

--I see a continued reluctance on the part of Heritage Conservation and Recreation Service (the old Bureau of Outdoor Recreation) to exercise leadership in the outdoor recreation research realm.

--I don't find a good relationship, partnership, or even fellowship between the agency researcher and the academic community researcher. There appears to be a class consciousness which I find difficult to fathom. For, I get most of the good applied studies out of the academic community.

--I don't see agencies developing the environment for finding research answers. You have to design areas with research capability if you want someone to look for answers.

So much for the researchers--how about public agencies?

--I see continued construction by some Federal agencies of tiny campgrounds which are unprotected, difficult to maintain, and costly to keep clean.

--I see the unsatisfactory workings of the public park professional's mentality in either providing only the meat and potato facilities with no recreational programming OR what is equally destructive to the camping family--only program emphasis on nature programs. Either philosophy will insure less than 20 percent of the teens will camp with their families.

--I see a continued conservatism expressed in building cookie cutter campgrounds without thought for: different sizes and shapes and kinds of camp units; different unit densities for different camper wants; sites for single families only, and the highly questionable thought that different types of users should be or even want to be separated.

--I see in public agencies a move away from developmental facilities for campers toward areas and facilities for the twin W's of winter sports and wilderness for the twin W's known as the wealthy and well educated.

Now that I have the research rascals and public agency representatives upset with me, allow me to also excite my friends in the private sector a bit by getting after public and private folks together.

--I see, feel and experience a greatly increased sharp-shooting at the public park sector (particularly the Feds) by segments of the private sector. (Some of it warranted, some not.) This sharpshooting has been at least part of the reason agencies are ringing the wilderness and winter sports gongs while backing away from the mainstream of American users. The forgotten fellow in this public versus private emotional dialogue is the quiet camper who likes to camp in and wants to camp in both public and private campgrounds. (More about this later.)

--I see too much dependence in both the public and private sectors on what managers think and how they feel rather than on really finding out what the user thinks. I make it a point to tell the 450-500 college students who visit us each year to beware of what managers tell them.

--I see both public and private campground folks building areas without built-in impact resistance. This causes tremendous environmental disturbance not to mention horrendous built-in maintenance problems.

--I see far too many campsites on both public and private areas built out in the sun. A research study isn't required to tell us campers in the Midwest and South try to find a bit of shade in the summertime.

--Don't see much emphasis in either the public or the private sectors concerning the handicapped, senior citizens, or the disadvantaged.

--Don't see much emphasis in either the public or the private sectors in closely working with the 413 outdoor recreation curricula training college students in the park and campground realm. How many public agencies and private entrepreneurs are hiring personnel with recreation or park degrees? Or, in fact, how many are even involved with the 8-18 week practicum many universities require? The number is few, indeed! Some of you would be surprised at how much <u>you</u> could learn from students!

Now, for all of those I haven't as yet praised:

--I see ever-increasing dependence by all of us on campground design by consultants. They appear to know no more about users or campground and camp unit design than most of us old-timers in the public realm. When will we begin to expect more than a pretty package from planners and designers of any sort including consultants?

--When will the consultants begin to dig out answers from some of us who have a bit of experience?

--One of the most shocking things I've found is what appears to be a complete disinterest on the part of the American Camping Association, the Recreation Vehicle Dealers Association, the Recreation Vehicle Industry Association, AND camping magazines concerning any part of crying out for more campground research and more and better campgrounds in both the public and private sectors. Logic tells me this should be akin to bread and butter or mother love to all of those mentioned; yet, getting them to work with us on design schools, workshops, and research has been all but impossible! This lack of concern for quality, quantity, and variety is tragic!

--In case you academic types feel neglected, please give campground planning, design, administration, protection and fun programming a bit more consideration as you teach outdoor recreation. A good first step in this process would be to learn a bit more about camping, campgrounds, and campers yourselves!

--Perhaps the most important of all campground related things for us to concern ourselves with is this: We in the public and private campground sectors have perpetrated some goshawful campground facilities including poor design, dirty areas, lack of protection, no consideration for handicapped persons, or for camping clubs, and ill-conceived programs on America's camping families. They are just beginning to get organized. If, if they ever find out what we've done, and if they ever recognize their tremendous political clout, I predict we'll all have to do a better campground job!

Raise your hand if I haven't upset you yet. Our mini-studies here at Land Between the Lakes lack sophistication, but did you know???

1. Teens will camp with their families?

2. Tent campers don't mind camping with wheeled-vehicle campers?

3. Tent campers prefer to camp on fine gravel rather than bare soil, grass or blacktop.

4. Ninety-nine percent of our campers arrive with their own primary camp stove cooking facilities.

5. Seventy percent of our campers in the three hot summer months want an evening campfire. My guess is this camper desire for a campfire is even higher in the fall and winter. Two students from UT-Martin are seeking answers on this right now.

6. The best place to publicize campground programs is on toilet doors?

7. The back-in campsite appears to be the most preferred type of camp unit.

8. Distance (at least up to ¼ mile) is not a criterion in whether or not users will attend programs within a campground? This means campfire theaters, ball fields, play courts, etc., need not be placed in the center of your area.

9. A high percentage of campers prefer medium to high density camping while some prefer lower densities?

10. It's possible to design 10-12 units/acre and still maintain screening and your campsite environment?

These and other similar results of mini-applied studies give planners, designers, and managers design and planning sideboards no one has ever had before. These are the kinds of answers managers and students, and other professionals are seeking.

Extending from our efforts with these applied studies, we have found an apparent lack of centralized information about campground research and planning. We have entered into a cooperative agreement with Southern Illinois University to begin to organize and compile basic reference materials on campgrounds and camping (see John Burde's paper in this Proceedings).

What else can we do to deal with the situation outlined above? Let's pursue discussions about this topic during the next three days. Let's resolve to join together to seek, provide, and disseminate design sideboards to ground-grubbing recreation folks everywhere.

WELCOMING/HOSTING VISITORS TO WILD LAND AREAS

Robert L. Prausa[1/]

My assignment today is to discuss ways in which we can help people feel more welcome at recreation sites. This is a natural thing for anyone in the private sector but sometimes public agencies are too officious and over-regulate people. As many of you know, the Forest Service currently is re-emphasizing its responsibilities in being a better host to our visitors. It has been traditional in the Forest Service to welcome recreation visitors but we think the time has come to take a critical look at just how good a job we are doing. You know, agencies, like people, often become complacent and think we are just as nice as can be while actually we may have let some bad habits creep into our lifestyle.

It is really no different for an agency to be a good host than it is for a family inviting someone to their home. Sometimes in keeping up our homes, we get so preoccupied with having things in tiptop shape that we may fail to be hospitable. We might be so concerned with not getting dirt on the carpet that this concern is evident to our guests and they feel unwelcome, or at least, ill at ease. This same protective attitude often becomes a preoccupation with agencies managing recreation sites and land areas. We might be so concerned with keeping the grass growing, the water clean, and the scenery unblemished that we act in a way to make our visitors feel unwelcome. Of course, the principal difference between an agency and a personal family is that a public managing agency cannot pick or choose its visitors like an individual might. Consequently, a public manager often thinks he is getting visitors who appear to have had "no upbringing" at all. Then he sees them "getting dirt on the carpet" and makes it clear in no uncertain terms that from here on out they can wipe their feet or stay at home. And the results of this attitude is usually that it begins a never ending circle of control - depreciative behavior - more problems for the manager - more control - more depreciative behavior, etc.

This is not to say that being a good host means that we should let people "track mud on the carpet"; i.e., pollute the lake or trample the grass, or make a mess. But is is important to realize that most depreciative behavior happens because of ignorance and our task is to communicate with these folks why controls are necessary.

1/ Recreation Group Leader, Regional Office, U.S. Forest Service, Milwaukee, Wisconsin.

What are some of the things a good host does? First, he makes it easy for a guest to reach a destination. He provides directions, draws a map, and maybe even puts up some signs. Secondly, he makes sure his home is neat, clean, etc. He does little extra things to make the guest comfortable - providing individual guest towels, for example. He advises the guest - in a nice way - of any special rules or elements of etiquette. Not more than four to a bed, for example, and leave your cork boots at the door. In short, a good host treats a visitor as an individual and caters to him as much as circumstances will permit. This is what the Forest Service is emphasizing in the host program being developed. There is nothing really earth shaking or all that new and innovative but rather a renewed understanding that we must treat the people we deal with as we would in private life.

Now let's look at some slides which illustrate a few situations in the Eastern Region of the Forest Service, some of the good things we are doing, and perhaps some of the conditions we should strive to change.

In the Eastern Region, and especially in recent years, we have been faced with a substantial influx in the number of recreation visitors, we have people - and more people - lots of people - (slides showing heavy use) and remember these are people, too. (Slides of little children) "Lots of people" require more and better information and very often regulation. But is this the way to do it? (Slide showing negative posters - heavy on the "NO") Here is a better way. (Slides showing better posters) In this latter instance, there could still be some improvement but most of the tone is softened. I think the little homemade sign about bears is particularly effective although its too bad the person who made it couldn't spell. But it is an attention getter and it certainly gives the public information and it demonstrates a way of being a good host.

Now here we have a few slides which illustrates a situation on the Manistee National Forest in lower Michigan. The Lake Michigan Recreation Area that you see on the left of the map is a very popular recreation complex. Let's take a look at what the typical visitor sees as he approaches the area on U.S. Highway 31. This first sign is at the junction of the main access road to the Lake Michigan area with U.S. 31 and this one is at the same junction coming from the other direction. These signs may be adequate for repeat visitors or individuals who are used to traveling in rural Michigan. But, I'll guarantee you, for the individual who does most of his driving on the Skyway and other freeways in Chicago, these signs are not very eye catching and certainly not at all what he is used to seeing. Here is a sign on the primary access road at the first road

intersection west of U.S. 31. Of course, at this location, the sign is quite adequate as by then the individual has selected the correct major access route and only needs to be assured as to which way to go at the intersection. Finally, this is what the visitor sees as he enters the main area. This sign should help orient visitors but actually this complex is quite large and I for one was rather confused the first time I drove through it searching for campsites, the boat ramp, and the swimming beach. For large recreation complexes I earnestly recommend the routed "you are here" map at or near the entrance to the area.

Incidentally, here is a good example of being a good host. (Slide of sign "Poison Ivy") This is a sign within that Lake Michigan Recreation area and its message is very simple and clear.

Let's examine one more interesting area on the Manistee NF, the Pine River. This is an extremely popular canoeing stream. As a matter of fact, it is so popular that in recent years even on a weekday one could sit on a high bluff above the stream and listen to the clatter of aluminum for hours. There was just one raft of canoes after another. This was compounded by the fact that the Pine River is also an excellent trout stream and produces some of the best brown trout fishing in Lower Michigan. And yet, canoeing was so heavy that except for the very early or late hours of the day it was literally impossible to fish the stream. Up until two years ago this entire stretch of the Pine River was owned by the Consumer's Power Company of Lower Michigan. They began to recognize that the user situation was actually a liability to them and that they were not staffed to properly manage the recreation use situation. So by mutual agreement, the Forest Service and the Consumer Power Company sat down and agreed upon a land exchange which resulted in the Forest Service acquiring all of the management responsibility on the river from the Pere Marquette State Forest down to Tippy Reservoir. After the Forest Service had acquired the river, the Forest Supervisor would have liked to begin to curtail use or manage it at about the level it had reached. But almost without exception, users of the river; outfitters and guides; the State DNR; and all others who knew the situation said that it had already gone too far and had to be turned back. The result was that last year a permit system was adopted for the Pine River and the maximum number of canoes allowed on any one day was equal to only 67 percent of the numbers permitted on the river the previous year. (We had taken careful measurements to establish the base data in 1977.) During the past summer we received very few complaints and many, many compliments. Trout fishermen reported that for the first time in ten years they were able to spend the late afternoon in the water without constant interruption from canoeists.

As the slides indicate, other actions were taken to help manage use. Landings were modified; an auto access campground was closed and converted into a staging area for canoeists; and overnight camping was limited to designated sites.

Presently, Huron-Manistee NF personnel are meeting with users, outfitters, the DNR and all others interested in management of the Pine River to evaluate the procedures followed last year and consider minor revisions for the coming season.

We believe this is an excellent example of being a good host and commend the Huron-Manistee NF personnel for their very fine effort.

Well, there you have it. We've done a few things right, but we have a long way to go. Yet, my conversations with Forest Supervisors, Rangers, and others in the field leads me to believe that there is top commitment to this Host Program and should lead to us receiving more letters with statements like this in them. "...Campsites were clean, all but the most minute items of trash had been picked up; signs were bright and visible and in places where they were helpful; latrines were absolutely outstanding (and even the two young women who made the rounds keeping them so and putting in fresh rolls of toilet paper were alert, happy and had an obvious high level of morale and esprit). Roads were in excellent repair - well the place looked so great that I couldn't resist the thought, "there must be something wrong here, and by damn I'm going to look until I find it." But I never did!!!"

Thank you.

PROGRAMMING ACTIVITIES FOR CAMPERS

or

"Yes, Virginia, Camping Can Be Fun"

John T. Hultsman[1/]

Like the little girl who, years ago, questioned the meaning of Christmas, I sometimes wonder what this strange "thing" called Outdoor Recreation is all about.

All the trappings - the physical signs of camping, hiking, and other outdoor activities - are quite easy to find: campsites, trails, toilet/shower buildings, and the other amenities which provide the backdrop for an enjoyable experience in the out-of-doors.

In fact, as we approach the 1980's, recreation professionals are beginning to come to terms with the knowledge necessary to design and build quality facilities. While the application of this knowledge is still quite far from being universally employed, it does appear from time to time.

It's possible, for instance, to find environmentally sound campsites (planning); crown cover reduced to optimum levels for recreation (research); and areas of known impact, such as trails, identified and reinforced (management).

There is, however, one aspect of recreation we tend to overlook: programming. In the past, most agencies and managers have been content to provide the physical facilities and let the user do his own thing. Some of this attitude probably stems from the background of most of our upper-level staff; recreation, as a discipline, is a relatively new addition to most university curricula. Even today, most college recreation departments are spinoffs of physical education or resource-oriented schools. Most of the decision-makers of today were educated prior to the emergence of recreation as a science in its own right. Coming from related fields such as forestry, wildlife, and engineering, today's managers seemingly find it easier to deal with trees than senior citizens, less difficult to understand possums than a camping family's pleasure at learning simple canoeing skills, and easier to cope with the laying out of a camping loop road than the grateful smile of a wheelchair-bound child.

1/ Recreation Planner, Recreation Resources Branch, Tennessee Valley Authority, Norris, Tennessee.

Programming, I feel, is on the verge of becoming perhaps the most important product of outdoor recreation. Let's take a look now at the "state-of-the-art" of programming.

Fun Programming Versus Education

The environmental movement of the 60's and early 70's, coupled with the resource orientation of many of today's managers, has had a considerable impact on campground programming. In terms of developed, family camping, the effect has been negative. Take a look at campgrounds in your area. Do you find a high percentage of teen-agers camping with their families? Chances are, most of you would answer no. By overemphasizing education, we've turned these young people off. Teen-agers, particularly those not of college age, spend enough of their time (in their opinion) being taught. If they would prefer to stay home and play baseball rather than learn to identify birds by their song, why not recognize this preference and provide them with the opportunity to enjoy baseball - and their family's company - in our campgrounds? Provide teens with activities they enjoy, and they'll flock to your campgrounds. Land Between the Lakes (LBL), for example, has a host of programs designed with teens in mind: court games such as volleyball and basketball, water-oriented activities, and "disco" dances. LBL campgrounds also have teen-agers. According to a University of Georgia study, 91 percent of the teen-agers living with their parents join their families in camping trips to LBL. Recreation programming - not education - brings them in. Recreation programming contributes to family unity not family alienation.

How do adults react to education-oriented programs? People from all over the country visit our interpretive center here and Fernbank nature center in Atlanta; they visit Appomattox, Gettysburg, and Shiloh because of their historical significance and to see the excellent Park Service programs there. They want to be informed or they wouldn't go to these outstanding places.

However - and here's the catch - visitors go to our campgrounds to relax, refresh, and rejuvenate, to rest their minds, not to tax them. An example: each year in mid-September LBL hosts a three-day Camper's Fair at Piney Campground. In 1977, 325 families attended. During the three days we had 35 separate programs (17 of these for teens). A nonprofessional puppet show attracted over 600 people (out of roughly 1,000 campers). Two nature walks - conducted by professionals - attracted two campers.

Camping should be fun! We don't have to teach everyone something (or think we have) to justify our existence. It's not a bad thing for people to enjoy themselves in our campgrounds. I'm all in favor of interpretive programs, but only as one piece of the overall programming pie.

The Psychology of Programming

Once we accept recreation - or fun - programming as a viable element of developed site camping, the next step involves maximizing the enjoyment for campers. This entails a number of elements including:

--Preferences. Find out what your campers are interested in and give them what they want (not what you think they need). I mentioned court games, beach activities, and dances appealing to teen-agers. These were stated preferences from a study conducted by a practicum student in Hillman Ferry, LBL's largest family campground. There's no need to second-guess user preferences; most campers are quite willing to share their opinions.

--Timing. Programs can be planned to maximize attendance through the simple trick of being where the people are when they are there. For example, plan your water-oriented activities for the hot, early afternoon hours when people congregate on the beach for a built-in clientele. (If you can't take Mohammed to the mountain ...).

--Marketing. Like any other "product," programming can enjoy maximum success with a page borrowed from Madison Avenue. Place eye-catching, up-to-date signs where people are most likely to see them - shower doors, bulletin boards, restrooms, and program zones are excellent spots for "ads." Use catchy names for your programs, particularly those aimed at children. You're more likely to attract youngsters to a "green submarine hunt" than to a program imaginatively titled "beach activity." When a given program is over, announce the location and time for the next activity. Work on building a repeat clientele; chances are someone interested in attending a program in the morning will be looking for an afternoon activity as well. One note of caution here: Don't be overly sensitive about people who don't attend. The Georgia study I referenced earlier indicated only about 43 percent of the adults are interested in attending any kind of program. (The figure for teens, however, was 87 percent.) So...don't "hard sell" your programs; get the word out, be enthusiastic, and let the campers come if they want.

--Support equipment. Since campers are not accustomed to being offered a smorgasbord of activities, you may have to provide the equipment they need to participate. Avoid emphasizing games like badminton with easy-to-break rackets and concentrate on items like softballs and bats,

basketballs, and volleyballs. The equipment lasts longer, may be used by a larger group, and appears to appeal to more campers.

--Programming for age groups. While some programs - the puppet show I mentioned earlier is an example - have universal appeal, you can "sell" your programs by keying in on specific age groups. Don't try to design all your programs to suit everyone. Plan several activities for children, direct some towards teen-agers, others to adults, and design still others for senior citizens. This brings me to a final topic:

Design Implications of Programming

Campfire theaters, shelter buildings, play courts, ball fields, beach zones, tot lots, and even parking lots serve as program zones. To insure programming works for, rather than against you, these elements and their use must be considered in an overall design concept.

Separation of use areas is a good axiom of design, particularly as it applies to programming. Passive use zones, such as campfire theaters, need to be well removed from active areas, such as play courts. The object here is to allow your program staff to plan and conduct a variety of programs, with appeal to different age groups, at the same time. While adults and younger children are attending an evening game of grocery bingo in the campfire theater, teens can have a disco dance (loud music apparently being a necessity) on the play courts. When LBL first introduced teen dances, our programming was a bit less sophisticated than it is today. Dances were the only program scheduled, so Mom, Dad, and little brother tagged along to watch. The teens showed up, but were self-conscious about dancing. Today, the teens have their privacy, and the rest of the family has an alternative to an evening of music they can easily do without.

Physical distance, noise attenuating vegetative screening, and topographic variation can all be used effectively to separate use areas.

According to the Georgia study, program attendance was not a function of the distance between campsites and program area. In other words, people camped 1/3 mile from a campfire theater were as likely to attend an evening program as those individuals camped 100 yards away. This doesn't preclude the need to separate active zones from camping loops; teens will play volleyball until 2 a.m. if you design the court away from people trying to sleep. They can enjoy themselves without bothering others. The study

results do imply, however, existing flats may be used for ball-fields and natural slopes used for campfire theaters as opposed to "forcing" facilities on unsuitable lands in order to centralize program zones.

Centralized facilities, of course, are desirable from the standpoints of convenience and administrative control, but do not necessarily improve program attendance. This only holds true, however, for facilities inside the campground. A State park not too far from here is designed with its theater built in conjunction with a resort-type lodge. The campground is 1/2 to 3/4 mile away, separated by a major highway. They also have poor program attendance.

Regulation-size play fields and courts, while nice, are probably a luxury in campgrounds. The competition is friendly and informal, and a softball game may entail 30 players on a team ranging in age from 6 to 60. From a design standpoint, therefore, planners can afford to shorten baselines and out-fields somewhat. If your softball zone includes a gradual slope, placing home plates at the lower end will reduce the distance a ball will roll, allowing for a shorter field.

Until recreation programming becomes an accepted part of overall management plans, budget constraints can be quite frustrating. A lack of dollars can be circumvented in some respects by careful planning. The parking lot someone designed for 100 cars (and never contains more than 20 at one time) can, with the addition of a little paint, become a bicycle skills course. A basketball standard at one end of the lot gives it a third purpose. An old log cabin, with a moderate amount of face lifting, makes an excellent setting for story telling, out-door cooking classes, and nature craft workshops. Most sporting goods stores will have seconds or slightly damaged goods which can be bought at a discount and will serve your purposes quite well. A little scrounging and improvising will go a long way.

Due to space and time constraints, I haven't addressed a major implication of programming: special populations. Suffice it to say "special" programming should consider not only the mentally and physically handicapped, but also groups such as senior citizens and inner-city youth.

Whoever your audience is, the keys to successful programming are the same: equal measures of enthusiasm and creativity, spiced with a knowledge of your clientele's preference and a sincerely desire to help people enjoy themselves.

And helping people is what the spirit of recreation is all about.

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CAMPSITE RESERVATIONS: A PUBLIC SERVICE

Arthur W. Magill[1/]

Campsite reservation systems, usually regarded as a means for rationing use and thereby reducing crowding and site deterioration (Magill 1974; Stankey and Baden 1977), are more important as a public convenience and service. They offer campers an opportunity to prepay their camping fees[2/] and to assure themselves of a place to stay before leaving home. The following discussion, however, should not be construed as advocating widespread implementation of reservation systems. On the contrary, advance reservation systems, and particularly computerized systems, are feasible only at locations where campgrounds have few vacancies during the season and none on holidays or weekends.

Even areas with high recreational pressures may not be adaptable to reservation systems for two reasons. First, some means for monitoring visitor arrivals and departures is needed. Usually an entry station is necessary, however, the San Bernardino National Forest, in heavily populated southern California, has numerous reservation campgrounds successfully monitored by roving campground attendants. Second, if a computerized system is desired, it is essential that numerous reservation sales offices be well distributed regionally and be readily accessible to a majority of users. Lack of sales outlets is a serious deterrant to reservation systems in some parts of the country.

At locations where campground use is continuous and high, vandalism, site deterioration, crowding, social conflict, need for overflow sites, and traffic congestion are of serious concern to resource managers. Except for vandalism and social conflict, advance reservations offer advantages which reduce such problems, particularly as campers learn that reservations are required and subsequent use aligns with the realistic capacity of each campground. Management actions, such as the development of additional

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1/ Principal Resource Analyst, Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Berkeley, California.

2/ The continued high use of reservations during the off-season, when vacancies are plentiful, has been viewed as an indicator of the desire to prepay fees. See: Donald E. Eckerman. 1976. The effects of reservation systems, income, and season on the use of California campgrounds. 200 p., illus. (Unpublished Ph.D. dissertation, University of California, Berkeley.)

camping facilities, increased numbers of enforcement personnel, installation of entrance stations, and improved and expanded visitor information programs also contribute to visitor satisfaction and site protection. Their contribution should not be misconstrued as a consequence of the reservation system. Such actions may be more important than reservation systems for providing improved control of campgrounds, including reduced vandalism. Increasing the number of campground attendants and thus increasing their visibility have led to decreased use in National Forest campgrounds in California.[3/] The decreased use has simply been attributed to enforcement of campsite occupancy limits - not more than six people or one family are allowed in a single-family unit.

Although reservation systems contribute to resource protection and reduced crowding - both of which are desirable from the manager's viewpoint - do such systems also serve campers from their perspective? Do campers really like reservation systems, are they willing to use them, and what difficulties do they encounter while using the system? These are some of the questions managers asked when two reservation systems were started during the summer of 1973. At that time the Forest Service and the National Park Service tested the two different campsite reservation systems in two National Forests and six National Parks. The Forest Service contracted with Ticketron[4/] to sell reservations for selected campgrounds in the Inyo and San Bernardino National Forests. The company already was experienced with selling sports and entertainment reservations as well as campsite reservations for the California State Park System. The Park Service contracted with the American Express Company - a firm experienced in hotel and motel reservations - to sell reservations for campsites in Yosemite and five other National Parks across the country.

Unfortunately, the American Express company ceased to operate its campground reservation services (and all other reservation systems it operated) when its contract with the Park Service ended. In 1974, the Park Service contracted with Park Reservation Systems, but operational difficulties led to termination of the contract that same year. Since then, the

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3/ Personal conversation with Gary D. Sinclair, Recreation Planning Staff, California Region, Forest Service, U.S. Department of Agriculture, San Francisco, California, September 1978.

4/ Trade names and commercial enterprises or products are mentioned solely for necessary information. No endorsement by the U.S. Department of Agriculture is implied.

Service has not offered any service-wide reservation system, although a few parks now employ their own manual systems. Recently, the National Park Service authorized each of its regional offices independently to start using reservation systems. The Western Regional Office is beginning to work with the California Region of the Forest Service possibly to develop an interagency system, most likely using a commercial vendor.[5/]

After its 1973 experiences, the Forest Service continued to offer campsite reservations through Ticketron, just as has the California State Park system. Although the Service's reservation system is restricted to the California Region, today 27 family campgrounds and 27 group campgrounds are on the system. A brief interview with recreation staff officers at the Forest Service's regional offices in the Southeast, North Central, and Rocky Mountain States revealed why computerized reservation systems have not been offered in other regions.[6/] Apparently present use levels do not justify starting advance reservation services, but planning is underway to start systems at these locations in from 5 to 10 years.

Operation of Reservation System

Some of you may not be familiar with the operation of campground reservation systems. A brief description of two systems and their advantages and disadvantages follows.

Currently, Ticketron reservations are available directly from ticket offices or by mail from company reservation centers upon payment of campground fees plus a $1.75 reservation fee for family units and $3.00 for group camps. Phone reservations are not accepted because WATS (Wide Area Telephone Service) lines are costly on a per call basis, payment cannot be made by telephone, and not all calls result in reservations. Reservation offices are linked to a computer center which records reservations and available space and allows ticket office operators to

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5/ Personal conversation with Philip W. Ward, Western Regional Office, National Park Service, U.S. Department of Interior, San Francisco, California, August 1978.

6/ Personal conversation with Winston T. Smith, Recreation Staff, Southern Region, Forest Service, U.S. Department of Agriculture, Atlanta, Georgia, August 1978; Robert L. Prausa, Recreation Staff, Eastern Region, Forest Service, U.S. Department of Agriculture, Milwaukee, Wisconsin, August 1978; Nils A. Arneson, Recreation Staff, Rocky Mountain Region, Forest Service, U.S. Department of Agriculture, Lakewood, Colorado, August 1978.

determine quickly campsite availability and register reservations. For cancellations before the reservation period has started, Ticketron refunds the campground fee but deducts the reservation fee as well as a $1.50 cancellation fee. If cancellation occurs after the camping period has started, then the daily camping fee is refunded for unused days and the cancellation fee is charged.

From the camper's point of view, the major difference between the Ticketron and American Express systems was the deadline for making reservations. Ticketron orders for any Friday-through-Thursday period had to be placed by the previous Saturday. This meant, for example, that a campsite for a trip scheduled to begin on Friday, the 14th, had to be reserved by Saturday the 8th. But if the trip were to begin on Thursday, the 13th, the order had to be placed by Saturday the 1st. This allowed time for reservations to be mailed to each campground by Thursday, and it allowed campground personnel to know exactly how much space remained for campers who might drop in without reservations during the following week. Campers therefore, had to plan their trips and make reservations at least seven days in advance; they could not decide and make a reservation the day before their trip was to start.

American Express accepted reservations up to midnight of the day before the occupancy date, and processed the reservations electronically, sending them to individual park headquarters as they were made. This was, of course, more convenient for campers planning a last-minute trip, but it was a nightmare for campground personnel who did not know until early morning what the final disposition of their campsites would be for that day. It also meant that drop-in campers, who had no reservations and could not make them at the campground, would not know from one day to the next how long they could keep their campsites.

Learning About System Users

In summer of 1973, I interviewed campers to assess how they perceived their experiences with the reservation systems so that I could answer some of the questions bothering managers. Results of the study are reported in a research paper titled, "Campsite Reservation Systems...The Camper's Viewpoint" (Magill 1976). The campers who were queried were mostly well-educated professionals or managers who were earning high incomes - about 69 percent reported incomes ranging between $10,000 and $25,000. Most campers were experienced: 44 percent had been camping for more than 10 years and 62 percent for more than 5 years.

It may occur to some readers that a reservation system might pose a hardship for campers whose jobs allow vacation planning only 2 or 3 weeks in advance. Such short lead times

may not allow campers to make reservations at the locations of their choice, especially during periods of peak use. My research found, however, that many people can plan vacations in advance: about 77 percent of all campers could plan more than 2 weeks in advance, and nearly 34 percent could plan more than 12 weeks in advance.

Despite their freedom to plan in advance and their professed willingness to do so, a majority of all campers said that they usually planned their trips 5 weeks or less in advance. I expect these data have not changed since 1973, and therefore most campers could use a reservation system because they have the freedom to plan in advance. Unfortunately, they probably won't do so, but as competition for campsite increases, those who get reservations will be among the 34 percent who have jobs that allow advanced planning of more than 12 weeks.

Reservation Sales Systems

A principal problem of campsite reservation systems is the impossibility of making reservations at one time and place for campgrounds run by different State and Federal agencies. There is no systematic procedure for referring a potential camper from the fully reserved campground of one agency to the nearby partially or unreserved campground of another. Furthermore, the public usually lacks knowledge of alternative campgrounds and is confused about which agencies administer them and which companies sell reservations. In my study, the problem was reflected in the desire of many people to have one reservation company selling reservations for all campgrounds, regardless of the administrative agency: 74 percent wanted reservations to be sold by one reservation company.

However convenient it may be to have one company represent all agencies, it may well be legally impractical. Because Government contracts are made by bid, more than one reservation company might bid successfully for the separate contracts of the different State and Federal agencies. Nevertheless, some measures need to be taken to ensure greater coordination between agencies and companies concerned with reservation camping. Perhaps resource agencies could develop a joint contract to put out for bids, or perhaps one reservation company could sell reservations for another through its own computer terminal - the way most airlines do now. As a minimum, there needs to be some sort of referral service between companies and between agencies which will allow campers to locate vacancies quickly and easily, or to determine that they should stay home.

Public Information

In advance of their pilot reservation programs, the Forest Service and the Park Service advertised through various news media to acquaint the public with the need for reservations and the procedures for obtaining them. But because the pilot programs were restricted in scope and duration, the information campaigns were also limited. Even allowing for the limitations, results were disappointing. Only about 30 percent of all campers had learned of the reservation requirement from the "mass media," and for more than half of this group, the mass media were the newspapers. Forty-one percent of the campers learned about the systems from their friends, and another 21 percent discovered the systems when they went camping without reservations, but were fortunate enough to get campsites.

These results essentially agree with those from other studies. Fazio and Gilbert (1974) found that an intensive information program about wilderness permits reached a million persons in Colorado, but few of them were wilderness users. Taylor and Knudson (1972) found that 63 percent of the campers in Indiana State campgrounds relied on friends for information. A Park Service survey (1974) showed 40 percent reliance on friends. And, today, the mass media are still ineffective when communicating with campers. Word-of-mouth remains the primary means for campers to learn about the system.7/

Camper's Choice

A key question when managers consider starting a reservation system is: Do campers want such a system or something else? In my study, campers were asked how they preferred to obtain campsites, and the traditional first-come-first-served method was listed. Seventy-six percent of all campers preferred to make reservations - mostly by going in person to a ticket office, nearly as many by telephoning, and a few by writing. Eighty-two percent of the campers were willing to make reservations in the future. These statistics bear out a Park Service study (1974) which showed that 86 percent of the respondents favored reservations.

Getting one's choice of campground and campsite appears to be important to campers. Although the reservation system

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7/ Personal conversation with Carl G. Westrate, Recreation Staff, California Region, Forest Service, U.S. Department of Agriculture, San Francisco, California, August 1970.

provides a choice of campgrounds, campsites are usually assigned upon arrival. In my study, 74 percent of the reservation campers said that getting their first choice of a campground was much more important than getting a particular campsite within a campground. As it turned out, most campers got their choice of campground, whereas about half as many got their preferred campsite. Not getting the campground or campsite of one's choice had not really spoiled the trips of most campers, because 94 percent indicated they had enjoyed their stay at a reservation campground. As the 1973 system trials progressed, some campers complained about not being able to pick their campsites. This complaint caused concern among managers particularly on the San Bernardino National Forest where campsites were assigned by computer according to type of camping equipment and, oddly, the least desirable sites were assigned first. Adjustments could be made at the campground only if space were available and campers requested a substitution. At Yosemite sites were usually assigned by attendants, but campers were allowed to look at vacant sites and express their choice. Obviously, assignment by computer or other constraints to free choice are sure to cause complaints - especially if campers see "good" campsites which are not occupied.

In conclusion, research findings have shown that campers generally accept the reservation concept, but prefer to have one reservation company selling reservations for campgrounds regardless of who administers the sites. Equally important, agencies must pinpoint more effective means for relaying reservation system information to campers. But most important, managers should recognize that well desired and smoothly functioning reservation systems provide campers with guaranteed places to stay before starting long journeys from home - and apparently our camping clientele appreciates the convenience.

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DEVELOPING MANAGEMENT OBJECTIVES FOR CAMPGROUNDS

Kenneth C. Chilman and Gregory M. Pierceall[1/]

The topic of this paper was suggested by Dr. J. Alan Wagar during a review of the proposed conference program. He said: "I think you need to take a careful look at campground management objectives. Why bother with campgrounds? What functions do they serve? Are these functions legitimate, especially for public agencies? Are we trying to create things or experiences?"

These questions are very basic to our discussions at this conference; so basic that we tend to overlook or ignore them. There are frequent references in the recreation management literature about the need for better management objectives (Wagar, 1964; Lime and Stankey, 1971; Lucas and Stankey, 1973; Brown, Driver, and Stankey, 1976; Heberlein, 1977). Unfortunately, there is very little in the literature about how better objectives might be developed.

Consequently, this paper focuses on three elements of the process of management objectives-setting. They are (1) defining the type of objectives that are needed, (2) gathering information useful to formulating better objectives (a concept we call 'Preobjectives Planning'), and (3) a systematic and structured review by persons that will be affected by the proposed objectives or that might have particular knowledge about implications of different courses of action (a concept that we call 'Postobjectives Evaluation').

The elements of objectives-setting above may appear elementary to many of you. Individuals attending this conference represent a considerable experience in recreation management and on-the-job training in objectives-setting. What we are suggesting here is that university education management training in forestry or wildlife management has been lacking in training in objectives-setting or planning. We are working to develop a structure for this training in outdoor recreation management curricula, and we ask for your feedback on the appropriateness of the following elements.

1/ The authors are, respectively, Associate Professor, Department of Forestry, Southern Illinois University-Carbondale, and Assistant Professor, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, Indiana.

What Kind of Objectives are We Talking About?

For outdoor recreation, Lime (1975) has indicated that "two types of management objectives can be differentiated: (1) broad objectives influenced or controlled by enabling legislation and general administrative policy; and (2) more explicit objectives that delineate the desired environmental setting and user experience(s) the area is to produce." Essentially, we are interested here in the second type (2) as objectives for a management unit area (park or campground) rather than (1) broader objectives for an entire management organization.

More specifically, we focus on four aspects of management objectives for field areas: (1) what is to be accomplished, (2) why it is important to accomplish, (3) how the objectives will be accomplished, and (4) establishing a strong identity or visibility for objectives to be accomplished. For the first aspect, Young (1970) states that an objective is capable of both measurement and attainment. His example is the objective of acquisition of two hundred acres of parkland by an organization within its more general goal of "provision of adequate outdoor recreation areas."

The second aspect - "why" - to be answered in present-day objectives-setting is illustrated by Wagar's questions in the first paragraph of this paper. Before we go very far with specifying what is to be accomplished and how it will be accomplished, we know that persons both inside and outside the management unit will be asking very explicit "why" questions. It is necessary to have carefully thought-through answers to the "why" questions prepared along with "how much" and "by what point in time."

The third aspect - "how the objectives are to be accomplished" - is an elaboration of Young's (1970) definition above that includes "capable--of attainment." Alternative means of accomplishing objectives need to be consciously considered along with alternative levels ("measurement") of attainment.

Finally, if it is worth time and effort to systematically develop new or improved objectives, it should also be worth a parallel effort to make the objectives clear and highly visible to all persons who might be involved in their attainment. Townsend (1970) states: "In the case of Avis, it took us six months to define one objective--. Thatobjective was simple enough that we didn't have to write it down. We could put it in every speech and talk about it wherever we went."

Too often, objectives are written down and filed away. If we are going to be serious about learning how to manage for quality outdoor recreation opportunities, we must strive to develop

challenging objectives and develop confidence that we can attain them. Part of developing that confidence is to clearly understand and articulate the concepts of planning related to objectives-setting.

One additional factor is becoming recognized as important in formulating recreation objectives; that is the notion of specifying the preferred type or types of recreation experience for which a recreation area or site is to be managed (Brown et al., 1976; Heberlein, 1977). This notion rests on the understanding that recreation visitors have diverse characteristics and interests and that managers will attempt to provide or maintain a spectrum of recreation opportunities for large areas or regions (Lime and Stankey, 1971) in order to maintain recreation quality (choice). For large recreation areas, such as national forests or national parks, this means an inventory must be undertaken of recreation activities occurring at various locations or within zones (Brown et al., 1978). Information must be gathered on requisite social and environmental characteristics necessary for various activities occurring at particular locations, then priorities for management of these locations may be related to activities which have fewest alternative locations. For campgrounds, this means studying the spectrum of camping opportunities available in a region, and deciding specifically what kind of camping experience to try to provide at the campground under consideration. More will be said about this later in this paper.

Preobjectives Planning to Develop Objectives

A major problem, i.e., misconception, in objectives-setting is that many people believe that objectives are developed, and then planning follows. We emphasize here that the reverse also occurs - planning needs to precede objectives-setting. This is what we call 'Preobjectives Planning.'

Fox (1970) has identified these two types of planning as "policy planning" (what do we want to accomplish and why: objectives) and "program planning" (how will the objectives be accomplished). Essentially, objectives do not (or at least should not) arise instantaneously and full-blown from some mysterious source. Considerable thought, information-gathering, discussion, review (and time) is invested before objectives that meet the criteria outlined above are developed.

For recreation management, the above dichotomy can be seen graphically in the model (Brown, Driver, and Stankey, 1976) below:

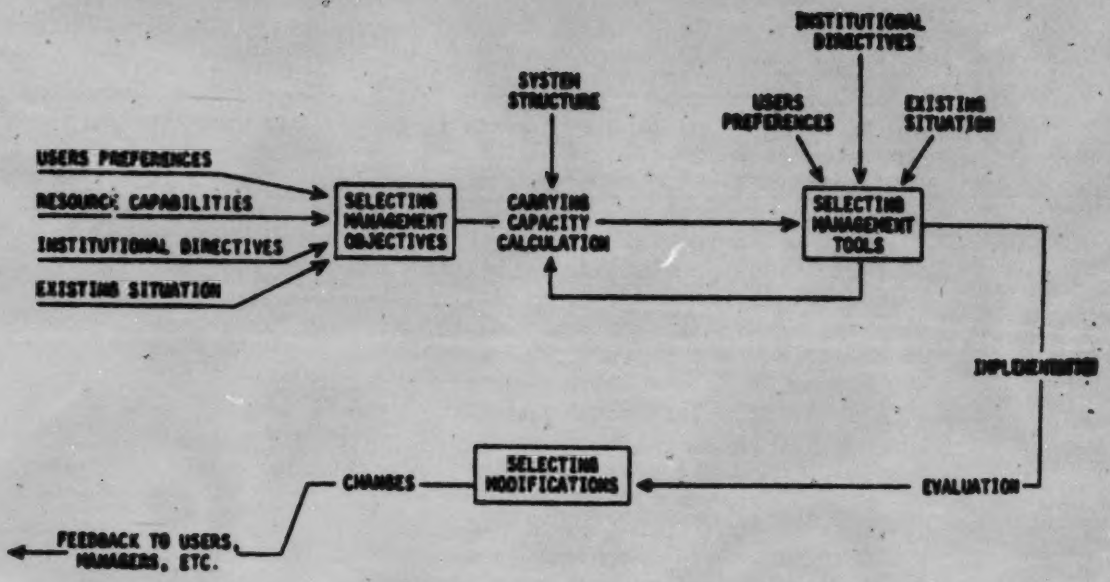

Figure 1.--*Decision points, with their inputs and outputs, for recreational management of rivers.*

The four items to the left of the 'Selecting Management Objectives' box are some of the elements involved in Preobjectives (or "policy") Planning. The items pointing to the 'Selecting Management Tools' box are directed to "program" planning.

For outdoor recreation, 'planning' is a generic term having to do with the development of a better information base for management decisions. Driver (1970) defines 'planning' as "an activity concerned with the systematic collection, analysis, organization and processing of technical information to facilitate decision making." With this information, he views planning as closely related - and needed - for the management job of making decisions.

Driver (1970) also emphasizes his "definition states that the primary role of the planner is to provide technical information." This is usually done through a sequence of activities called a 'planning process' (Driver, 1970; Gould, 1968). While the 'planning process' is often elaborately outlined and detailed (Uleck, 1971), we suggest the following simplified outline to our students:

Meetings of concerned person to:

1. Define the problem, or change, which has triggered the need for planning.

2. Review available information that relates to the above, defined need for completeness and usefulness as the information has been collected and organized.

3. Develop and discuss possible alternatives for dealing with the planning need.

4. Choose the "best" alternative as the desired course of action for implementation.

These four parts may be overlapping, and may require moving back to consider previous parts again from time to time. In Preobjectives Planning, we ask that these four parts be kept in mind as basic, and also that the notion of meetings of concerned persons will be very important. This last point is further amplified in the following section.

Management Objectives for Campgrounds

How do the above considerations come together in the specific case of campgrounds? How do they help to answer Wagar's four questions? The following four part sequence is suggested as a quideline to begin to define management objectives for campgrounds:

1. Study existing campgrounds in the region to identify the types of camping experiences they provide, and to identify what type of camping experience your camp area can best provide in relation to this regional "spectrum of opportunities."

2. For new campgrounds, study possible locations and site conditions for best suitability; or for existing campgrounds, study site conditions and redesign of camp area or addition of services to provide the desired type of experience.

3. Obtain technical information on campground design and development to find ways to prevent problems of maintenance and management after the camp is constructed.

4. Develop objectives for the campground that answer Wagar's questions above.

For the first item in the above sequence, Wagar (1963) offers a typology of campgrounds that may be useful. This typology includes the following: (1) travelers camps - emphasizing convenience for transient campers and located near main highways, (2) central camps - usually large campgrounds for weekend or vacationing campers interested in socializing with other campers, (3) forest camps - usually smaller camps some distance from main highways for campers interested in more solitude and enjoyment of natural environments, (4) peak-load camps - for overflow crowds on holidays or opening day of hunting or fishing seasons, and (5) long-term campgrounds - for the minority of persons who may want to stay several weeks at one location. This latter group may include retired persons who spend long periods of time camping in recreational vehicles.

Items 2 and 3 above pose more of a problem, and are part of the reason for this conference. There has been considerable information generated on campground design and development, but currently it has not been gathered together and systematically arranged for convenient reference. Efforts have been initiated to organize these materials and make them available under a cooperative agreement between Tennessee Valley Authority-Land Between the Lakes and the Department of Forestry, Southern Illinois University-Carbondale.

With item 4, the objectives need to be kept in the forefront of management activity, and constantly discussed and reviewed. For starters, the following review process is recommended.

Understanding the Objectives: Postobjectives Evaluation

Unless the formulated objectives are clearly and consistently understood by the variety of persons who may be involved or concerned with them, they stand little chance of accomplishment as intended. Therefore, we advocate structured and systematic review - Postobjectives Evaluation - of the formulated objectives.

For landscape architects as planners, establishment of objectives and policy statements concerning physical features, management of facilities, and use is a part of the "design process" (see Appendix A). In the establishment of goals, aims or intent it is important to have sufficient background information and research to adequately determine and then evaluate the proposed policies or decision-making concerns. Whether the question is about the physical design of an area or space, or the means to effectively use a site for today's needs, the planner/manager must establish what the problem is and then proceed to determine what solution should result. The solution stage may be a physical change in facilities or in the means by which the area is used/managed. In any case the planned result should reflect the physical environment in which the use occurs, inclusive of environmental

features as well as the "users" of the space. "Our planning professions have a common goal in their aim to determine, to create, and then keep current, optimum relations between people and their environments" (Simonds, 1961).

In the evaluation process, the reviewer needs to be aware of the initial problem, the details surrounding the situation and the means for coming to some resolution. For the planner/designer, the evaluation of formulated objectives helps actualize the final implementation, making the selection more reinforced in the decision-makers mind. By questioning the thoughts and ideas about the objectives, the end result should be more functional. One means of "plan" evaluation is proposed in Anatomy of a Park (Rutledge, 1971). In the chapter on Plan Evaluation, Rutledge states that after the proposal is developed, question the solution to determine if the proposal will be functional for the situation and for the users it is to serve. This same concept can be applied to the evaluation of management objectives concerning the use of the park facility after its physical development occurs (see Appendix B). With evaluation by persons involved in the implementation of the objectives, future problems can be identified and corrected prior to their actualization.

In the application of Postobjectives Evaluation, a tool is the use of an evaluation form to help reviewers understand the proposed objectives prior to the review of the report. In 1978, a parks planning study was initiated by the joint interest of the citizenry park board and the University of Houston at Clear Lake City. In the small community, an environ of Houston, the intensive housing use of the communities remaining open spaces made it evident that if a planning study weren't completed, the opportunities for open space recreation would be lost to development pressure. The proposed study provided a survey of the present facilities and needs with a projection of the future demands for recreation to be provided by the municipality. In the establishment of objectives and intentions for the community reflective of the given situation, it was realized that if the study were to be evaluated effectively the reviewers should better understand what the objectives were and their importance. At the final stages of the report a Study Evaluation Form was developed (see Appendix C).

In the development of the form, the major project objectives were restated as a question to provide a focus for the reviewers prior to the reading of the study. Questions were related to the topical sections of the report. In reading the evaluation questions, reviewing the report, then responding to the questions, the evaluation form helped define what the objectives were, and provided a more meaningful review of the study for the reviewers and planners. The findings of this review were that the citizenry board was better able to review the policies proposed and respond

to the report. If no vehicle is provided for input other than "please comment," as is found so many times, were included the review and evaluation wouldn't have been as meaningful to the board or the planners.

In the areas of planning and management, the use of evaluations or "feed-back" mechanisms can help develop better planning information as well as to educate reviewers and ourselves concerning objectives and their use. The end result of evaluation is better utilization of information and actualization of project goals and aims.

After Formulating Objectives, What Then?

Developing most appropriate and viable objectives is important, but only part of the job. Various forces will conspire to negate these conscious efforts toward improving quality of recreation opportunities.

Primary among these forces will be the ever constant demands on managers' time. A variety of changes and new problems will draw attention away from the stated objectives, and cause them to be relegated to low visibility unless conscious efforts are made to keep the objectives as a working direction.

Townsend (1970) says that he used to keep a sign opposite his desk where he looked directly at it when on the telephone or meeting with someone in his office: "Is what I'm doing or about to do getting us closer to our objectives?" He says "Most of all, work on simplifying and distilling your statement of objectives." Do this by consciously reviewing and discussing the objectives with other persons whenever possible. A system of periodic reminders or reviews of progress toward accomplishing the objectives is often utilized.

Another primary force working against accomplishment of objectives is the constancy of changes in our present-day environments. As well as unforeseen physical changes in recreation environments, there are changes in legislation, in organizational situations, and changes in personnel within management and in visitors to recreation areas. All of these raise new questions and may indicate need for changes in the objectives as stated. A major problem of formulated objectives is rigidity in holding to them in the face of change; flexibility can be maintained by utilizing planning to develop a better information base for instituting changes. Frequent articulation and discussion of objectives, especially as "new" people come on the scene, is one of the best ways to maintain working consensus and viability of objectives.

Townsend (1970) reminds us that: "One of the important functions of a leader is to make the organization concentrate on its objectives." Wagar has provided us with an example of that

function with his questions directed to this conference. With this review of elements of the process of objectives-setting, let us work to provide leadership towards improving the quality of outdoor recreation opportunities.

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APPENDIX A

the design process...a systematic approach to the plan solution of landscape design problems.

given: a problem....the existing site and the purpose for which it will be used (modified) are the two parts of most design problems.

one: program establishment

A list of the required elements of the plan must be agreed upon. These program requirements may be suggested by the designer or identified by the client.

Objectives are established which describe the quality and quantity of the areas desired. Typical objectives concern safety, image, expression, flexibility, convenience, security, opportunity, etc., and degrees of each.

Other considerations such as budget restrictions, priorities, responsibilities, historical data, etc., are usually included in the program.

two: program research

All elements of the program must be thoroughly understood. This is accomplished by primary and/or secondary research. Of particular importance are the requirements and whatever they translate to in terms of size, area, number, linkage, etc. In this research effort always consider image, function, and structure.

three: program analysis

The various requirements are grouped so that compatable elements or functions are brought together. A compatability matrix may be employed to graphically express the many relationships which usually become too complex to store in ones head. Based on these relationships an abstract plan is arrived at through many schematics. The schematics communicate a surface or plan arrangement of the parts or functions to be introduced into the landscape, with lines of communications between. This step is begun without scale, but as a solution develops, scale is added. As yet, no site or map is assumed.

four: the site survey

As an independent step, a site survey is conducted so that natural, cultural and perceptual information is mapped to provide a complete "raw data" picture of the site and the surrounding area of influence.

five: the site analysis

The survey information is analyzed to determine inherent opportunities and limitations for site use. This is often accomplished by diagrams, use of tone, color or pattern on a top map. The analysis may be set up to determine how the site can best serve the intended use(s) or how the site should be used based on its inherent qualities.

six: synthesis

This is the critical "putting it all together" stage. A plan appears when the schematics are superimposed over the site analysis map and are subjected to revisions of scale, shifting of spaces, streching, warping, raising, lowering, etc., although some site and/or schematic compromise may be necessary, the plan should exhibit a "fine fit" between the site analysis and program. Care should be taken not to sacrifice important schematic relationships or disturbance to existing site conditions or natural functions.

A great deal of adjustment and refinement is usually required to achieve this "fine fit". Although consideration has been directed towards image, function, and structure throughout the process, contained refinement now insures that the program objectives are satisfied with respect to these three umbrella design considerations.

seven: problem solution communication

The plan or problem solution now must be communicated both from the "sell point of view and drawings/documents that provide the information necessary for construction. Such items as sketches, master plan, grading plans, planting plans, details, specifications, models, etc., would fall into this category. Some of these items may be accomplished during the problem solution or may be developed after to "sell" or explain.

eight: evaluation

The last step, which in one sense could be considered the beginning, is the evaluation of the implemented problem (design) solution. Just as this design process requires adaptation to fit various problem types, no one evaluation technique will be adaptable to every project. In any event, at least two points should be considered:

the degree that the stated objectives were met and the validity of the objectives as determined by the user.

physical changes might be made in the project or knowledge gained applied to subsequent projects.

summary:

The process presented reads as a linear process that is following a step by step path in one direction - ahead yet at any point in the steps it is usually necessary to circle back and re-evaluate, re-examine or gather more information.

APPENDIX B

Anatomy of a Park, Chapter Seven, Plan Evaluation

1. Everything must have a purpose.
   a. Relation to park to surroundings
   b. Relation of use areas to site
   c. Relation of use areas to use areas
   d. Relation of major structures to use areas
   e. Relation of minor structures to minor structures
2. Design must be for people.
   a. Balance of impersonal and personal needs
3. Both function and aesthetics must be satisfied.
   a. Balance of dollar and human values
4. Establish a substantial experience.
   a. Effects of lines, forms, textures, and colors
   b. Effects of dominance
   c. Effects of enclosure
5. Establish an appropriate experience.
   a. Suited to personality of place
   b. Suited to personality of user
   c. Suited to personality of function
   d. Suited to scale
6. Satisfy technical requirements.
   a. Sizes
   b. Quantities
   c. Orientation to natural forces
   d. Operating needs
7. Meet needs for lowest possible cost.
   a. Balance of needs and budget
   b. Use of existing site resources
   c. Provision of appropriate structural materials
   d. Provision of appropriate plant materials
   e. Attention to details
8. Provide for supervision ease.
   a. Balance of use freedom and control
   b. Circulation
   c. Safety
   d. Discouraging undesirables
9. Other

Ref. Rutledge, Anatomy of a Park, McGraw-Hill Publishers. 1971.

APPENDIX C

STUDY EVALUATION FORM

This evaluation form is a method to effectively channel constructive feedback from the study reviewer back to the planner. It is to be completed and returned to City Hall upon review of the study. Comments and constructive criticisms are encouraged and are to be written on the back of these evaluation forms. These comments will be taken into account in the final copy of the Parks Policy Planning Study.

General

1. Was the format of the study presented in a clear and readable form? (Please circle one--same format used throughout the evaluation forms)

Extremely Clear	Clear	Somewhat Clear	No Opinion	Somewhat Unclear	Unclear	Extremely Unclear

2. Was the textual material presented in a clear and readable form?

EC	C	SC	NO	SU	U	EU

3. Were the tables, figures, maps and drawings clearly related to the textual material in a logical and readable manner?

4. Was each section progressively arranged in a clear and logical manner to support the major findings and recommendations of the study?

5. Did the policies and practices suggested in Section 4 clearly and logically follow from the previous sections?

Section 1

6. Was it clear what the precise aims and services rendered of this study were to be?

7. Was it clear what the concept of policy planning is and how it was to be applied to this study for the city?

8. Was it clear that this study was <u>not</u> a parks master plan but rather a study that could be used as an input into the eventual compilation of one?

Section 2

9. Was the importance of environmental on-site surveys as well as compatible off-site surveys in the acquisition and development of individual park sites clear?

10. Did the long range acquisition possibilities for park sites appear clear and reasonable in the development of Sugar Land's supplementary park system?

Section 3

11. Were the use of outdoor recreational standards in the analysis of acreage and facilities needed for future populations of Sugar Land clear and logical?

12. Were the weaknesses and shortcomings of the use of standards in relation to individual park sites clear and follow from the preceding section?

13. Did the section on implications for neighborhood parks planning follow clearly and logically from the previous demand/supply analysis?

14. Was the section on neighborhood planning concepts, needs assessment studies, community advisory groups and program evaluations clear?

Section 4

15. Was the breakdown of policies and practices for the acquisition, development, maintenance and administration of Sugar Land's park system clear and of use to the city?

Appendices

16. Was it clear that Tables 1-4 were the basis on which the outdoor recreational needs of future citizens of Sugar Land were computed?

17. Was the discussion on the merits and demerits of the recreational set-aside ordinance clear?

Ref. Perrecone, Pierceall, Sugarland Parks Policy, Planning Study, Houston, Texas, University of Houston at Clear Lake City. 1978

"DEFINED SITE" DESIGN GUIDELINES

John Hultsman and Richard Cottrell[1/]

There are probably as many solutions to the challenge of how to design quality camp units as there are plots of developable land. Each individual location with unit development potential should be considered on its own merits according to the type of user for whom the unit (and therefore the campground) is being planned. Campers in an off-road vehicle area, a wrangler's camp, and a lakeside fishermen's campground all require different types of campsites; these all differ from sites in a family campground.

This publication[2/] is concerned with the design of units in large family campgrounds. The users usually consist of one or more families. Their equipment ranges from small tents to large recreational vehicles (R.V.'s) 45 to 50 feet long, including the tow vehicle.

A word of caution is in order: The intent here is to provide a set of generalized guidelines for unit design. Specific developments require individual attention. It is not plausible to develop a quality camping unit without the integral step of field design. Factors including shade, site aesthetics (such as scenic vistas), and understory vegetation must be considered in final site design and layout. These and other considerations can be analyzed effectively only after careful and frequent onsite inspections.

The goals of quality unit design are twofold: Managers of recreation lands have the dual responsibility of protecting natural resources and providing an enjoyable experience for users. The following "defined site" concept protects site resources and enhances the campers' experience by outlining site boundaries to serve as "property lines" (see second to last paragraph under Unit Construction).

1/ Respectively, Recreation Planner, Tennessee Valley Authority, Norris, Tennessee, and Senior Recreation Specialist, Tennessee Valley Authority, Land Between the Lakes, Kentucky.

2/ This paper was originally distributed by Land Between the Lakes, Tennessee Valley Authority, Golden Pond, Kentucky, December 1978.

Site Selection

Tennessee Valley Authority (TVA) at Land Between the Lakes recommends the following procedure: After consideration of alternatives, determine optimum traffic flow patterns (potential unit locations should be a determining factor in road locations). Design, lay out, and clear the right of way for the access road on which units are to be constructed. After the right of way has been cleared, a knowledgeable planner or design team should go to the field and determine where to place individual units. The perimeter of each unit should be marked and the entire site cleared, leaving a screen of understory vegetation between each site (see Screening). Once these enclaves are cleared, the outline of each unit may be staked for construction.

Unit Size

The size of a camping unit is largely contingent upon the physical characteristics of the site. If funds and heavy equipment are available units may be constructed on marginal land. However, sites requiring a minimum of heavy construction, such as extensive cuts and fills, are preferable. Assuming an adequate land base, a good rule of thumb for unit size (excluding the parking spur) is a minimum of 25 by 25 feet, or 625 square feet. Units may (and often should) be larger when possible. Small units are acceptable, and may be preferred over the alternative of extensive cosmetic work on the land base. A site 25 by 25 feet should be large enough to contain the equipment used by a single camping family. Development of some units smaller than this will allow maximum utilization of the land base while larger units provide space for two-family occupation. (Approximately 37 percent of the users at family campgrounds at Land Between the Lakes are dual family or larger groups.)

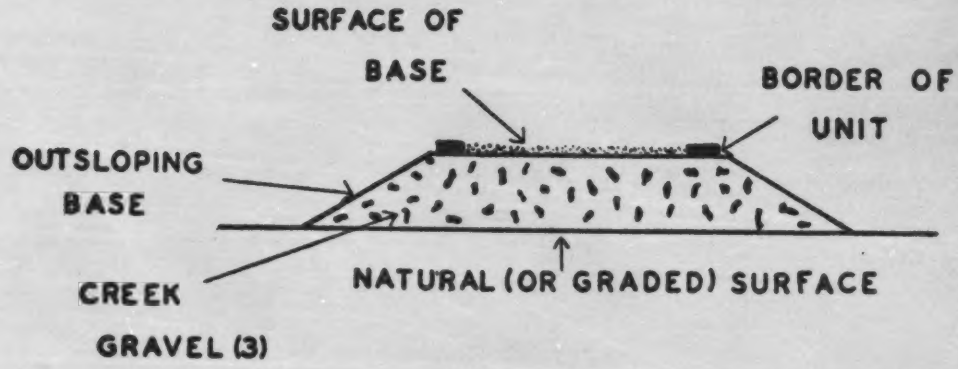
TVA's Land Between the Lakes recommends that all camp units (at developed sites) be designed to allow use by campers with all types of equipment. Research (Conover 1977) indicates tent and trailer campers readily accept camping in close proximity to each other, at least up to 10 units per acre. Additionally, multipurpose units preclude the need for separation of users by equipment type, a time- and money-consuming administrative problem.

Unit Construction

Construction guidelines given here are those utilized at Land Between the Lakes. Factors such as agency requirements and availability of materials should be considered for individual developments. Units at Land Between the Lakes are constructed as follows: If the selected site contains localized topographic

problems, such as a minor drainage or depression, it is graded fairly level. If these or similar problems do not exist, construction begins with the second step: A layer of creek or river gravelis placed on the site to serve as a base for the unit. The length and width of this base contain the space designed for the living and parking area of the unit, plus an additional 2 to 3 feet of outsloped perimeter for use in the final "dressing" of the unit (Figure 1). Depth of the gravel

Figure 1 - CAMP UNIT BASE CONSTRUCTION

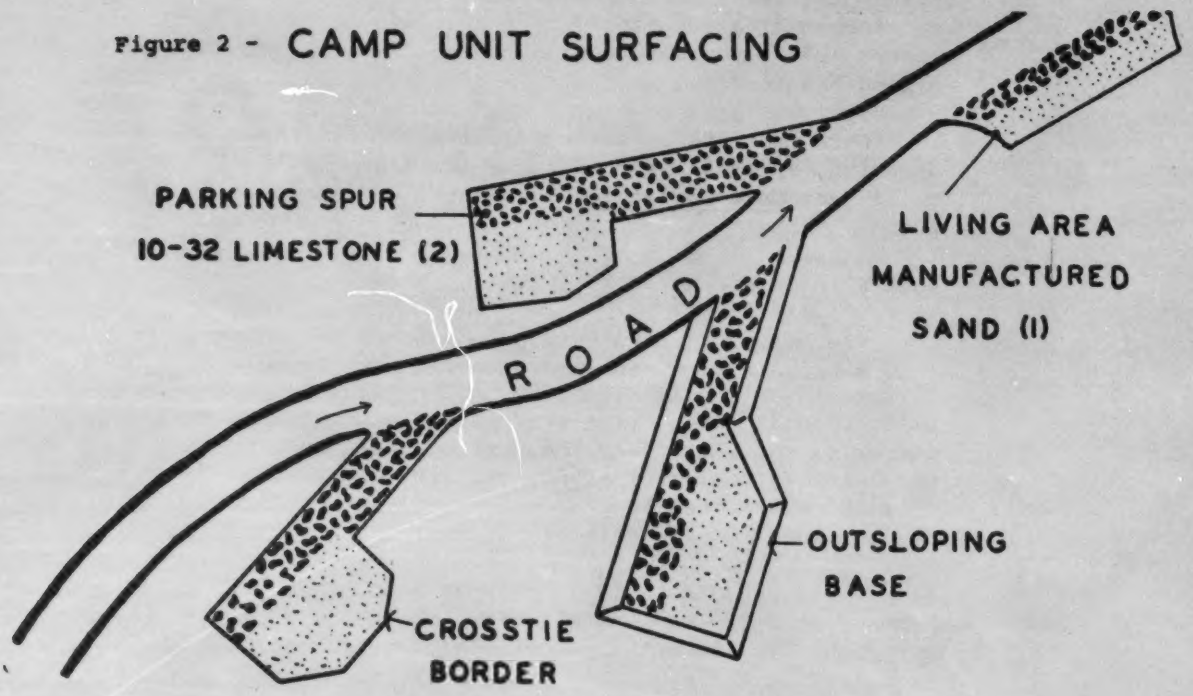


base depends on the lay of the land. If a fill is required, portions of the base may be several feet deep. On level ground, six inches generally is adequate. In some areas the cost of river gravel may be prohibitive. In these instances, earth fill may be substituted for much of the gravel. However, the top three to four inches of fill should still be gravel to retard settling.

Place the unit surface on top of the base. This surfacing material consists of two grades of limestone rock. The larger grade, a 10-32 limestone (roughly one-fourth to one-half inch aggregate size), is used on the parking spur of the unit. (Land Between the Lakes paves camping loop roads - for dust abatement - but not parking spurs. Except in sand, paved spurs are generally unnecessary.) The living area of the unit is directly adjacent to (and not barricaded from) the parking spur. The design philosophy at Land Between the Lakes is to avoid second-guessing

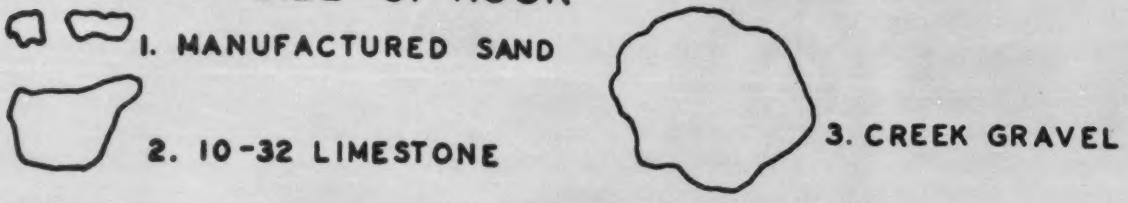
how the user will want to organize his living space. What a designer may envision as the ideal location for a tent may not suit user preferences. Therefore, units are designed without separating the parking spur from the unit living space, allowing users to design their own space (Figure 2). This living space

Figure 2 - CAMP UNIT SURFACING



is covered with a layer of limestone fines, or manufactured sand - a flaked limestone rock with an aggregate size of roughly one-eighth inch (Figure 2a). Grade the unit surface

Figure 3 - SIZE OF ROCK



level (with the exception discussed in "ramping," page 10) and outline with a border of railroad crossties. Anchor the

crossties by means of 30-inch reinforcement bars driven through holes in the ties into the base material of the unit. (When construction costs permit, the use of penta-treated crossties is advised.) Units with crosstie borders are preferred by users, primarily because the crossties serve to define the unit and serve as "property lines" (Hultsman 1976). From a management standpoint crossties serve psychologically to contain users to a reinforced area reducing impact on the surrounding land base (Hanna 1976), thus protecting the adjacent environment and minimizing maintenance.

Once the site is bordered, give the outsloped base a final dressing, install a picnic table and a ground-level, tilt-back grill (see Unit Furniture Placement), and the unit is ready for use.

Unit Furniture Placement

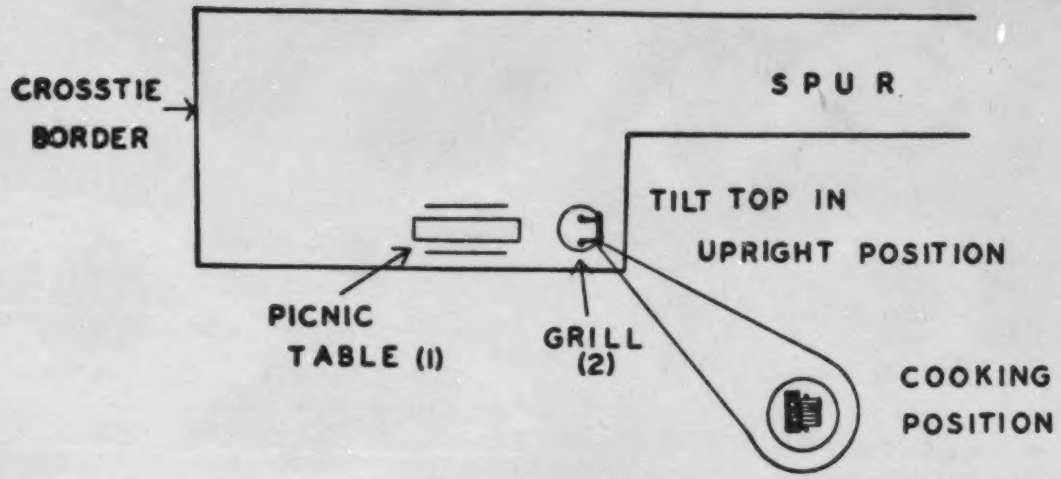
The policy at Land Between the Lakes is not to force users into a predetermined arrangement of their living space. Figure 4 illustrates how unit furniture may be placed to allow user-designed utilization of space. Tucking the furniture into a corner of the unit frees the remainder of the space for the user to place his equipment (tent, trailer, dining fly, vehicle, bicycles, lawn chairs, play pen, etc.) as he pleases. Afternoon shade should be considered in determining furniture location.

Research (Shreve 1977) indicates only about 20 percent of campers actually use installed grills as their primary cooking implement (80 percent use portable stoves or cooking units installed in their R.V.). Thus, a ground-level, tilt-back grill is recommended for use. While cooking is not likely to increase on these grills, they do function to management's advantage by providing a single, reinforced spot within each unit on which the user can build his campfire. (While not used extensively for cooking, campfires are built by most campers--70 percent during a June-August sample--for atmosphere, insect controlling, or warming.) The use of tilt-back grills satisfies the needs of those campers who wish to use their grills for cooking purposes, and also helps preclude unsightly "fire spots" dotted over the unit. In the study cited, users who camped on sites with stand-up picnic grills built campfires either on the gravel surface of the pad (52 percent) or completely off the pad (48 percent). On units with a tilt-back grill, 2 percent of the users built campfires on the gravel camping pad, while 98 percent used the circular cement grill pad.

Set the tilt-back grill (several models are available commercially) in a cement form, 4 feet in diameter, built into the base material of the unit so, when the unit is surfaced the

top of the cement form is flush with the top of the camp unit surfacing material. We recommend construction crews be instructed to set the grills so the grate, when upright, is not between the user's campfire and the unit's picnic table (Figure 3). We also recommend a circular form, which suits the shape of a campfire better than a rectangular form.

Figure 3 - PROPER PLACEMENT OF GRILL

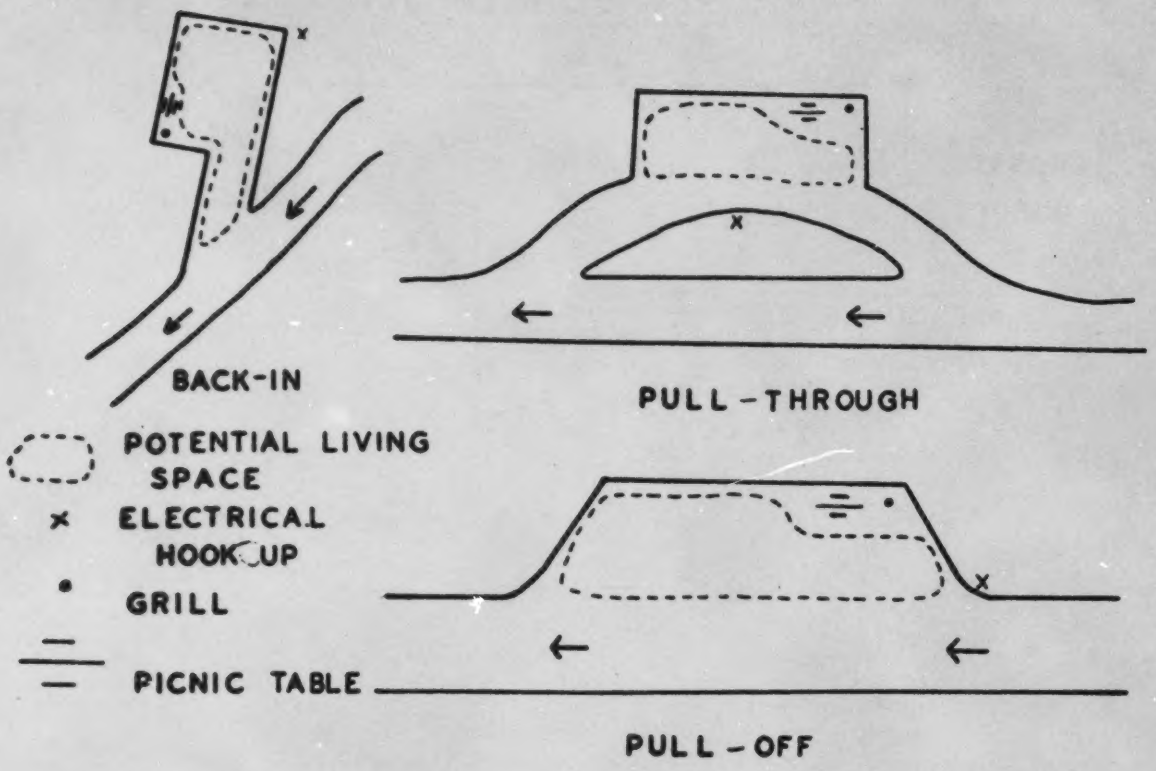


Picnic tables should be placed so the end nearer the grill pad is about 5 to 6 feet from the center of the grill. This spacing leaves adequate room between the end of the table and the fire, without wasting space. The best type of table seems to be a concrete slab top, 8 feet long, with wooden benches. The concrete slab is relatively maintenance free and the wooden benches are warmer in cool weather than are concrete benches.

If electrical hookups are provided, they should be placed where they may be reached easily from the left-hand (driver's) side of the R.V., at the rear (Figure 4).

Garbage cans may be provided for every unit, although they should be clustered in groups of three to four cans at carefully selected points along the road rather than adjacent to each unit. This speeds up collection by reducing the number of pickup sites. Garbage collection time may be further reduced by providing centrally located Dumpsters for each camping loop. A single Dumpster should serve approximately 25 camp units.

Figure 4 - UNIT TYPES & FURNITURE PLACEMENT



If potable water is provided, costs may be reduced by placing common-use fountain and faucet combinations along the road. Depending on the density of the units (number per acre), one outlet for each 5 to 7 units should suffice.

Type of Unit

Three types of camping unit designs are suitable for the diverse clientele camping today. These are the back-in, the pull-through, and the pull-off (Figure 4).

Back-in units are the most space-efficient of the three. Also, research indicates users prefer this type (Hultsman 1976). Back-in units function well on either side of a loop road provided that the angle of the spur-road juncture is acute on the short side of the spur. Occasionally, the lay of the land may dictate a 90 degree spur-road juncture. A back-in unit perpendicular to the road may be made functional if the spur can be flared wide where it meets the road. Any angle greater than 90 degrees on the short side of the spur creates a pull-in unit which is not acceptable. (When a car enters a pull-in unit, the trailer is behind it; this precludes leaving the unit by car without moving the trailer). On a back-in unit, the spur should be a minimum of 10 feet wide (preferably 12 feet) and, when possible, 50 feet long to serve the large R.V.'s in use today.

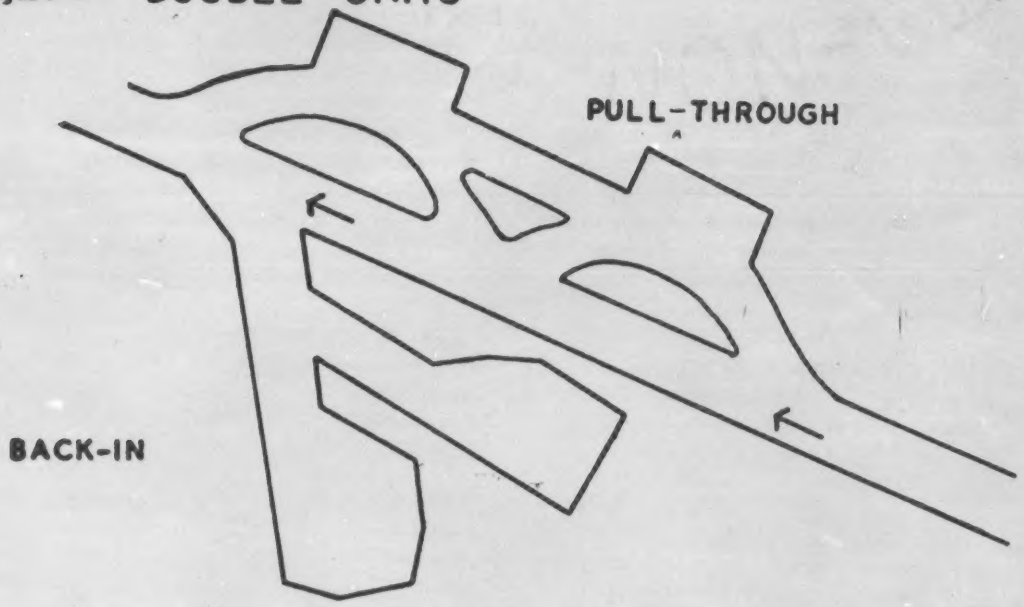
On all types of units the living space should be to the driver's right as he enters the spur. Most R.V.'s have doors on the right-hand, or passenger, side of the vehicle. Thus, the design goal here is to allow the user to exit his R.V. directly onto the unit.

The pull-through unit requires more space than other acceptable types, but is the easiest for an inexperienced user to enter and exit. It functions well on either side of a two-way road, but only on the right-hand side of a one-way road. As with back-in units, the entrance and exit should be at least 10 feet wide. The centerline length of the parking spur should be a minimum of 80 feet. If an electrical hookup is provided, it should be located as shown in Figure 4.

The pull-off is essentially an abbreviated version of the pull-through unit. It is suited for use where a back-in is not practical and too little land is available for a pull-through. It also functions on either side of a two-way road and only on the right-hand side of a one-way road. If an electrical hookup is provided, it should be located as shown in Figure 4.

One important factor in selecting unit type is variety. A long series of identical units may give the user the feeling of being in a "rubber stamp" campground. "Cookie-cutter" design encourages monotony and prevents users from selecting the type of unit they prefer. This does not imply that a particular type of unit should be forced onto a piece of land where it will not fit without extensive cosmetic work. Rather, unit types should be varied as the land base permits. Varying the shapes and sizes of similar type units also helps relieve monotony. Shapes may be varied by avoiding right angle corners on some units (Figure 2). Also, double-unit back-ins (Figure 5) add variety and meet the needs of dual-family units.

Figure 5 - DOUBLE UNITS



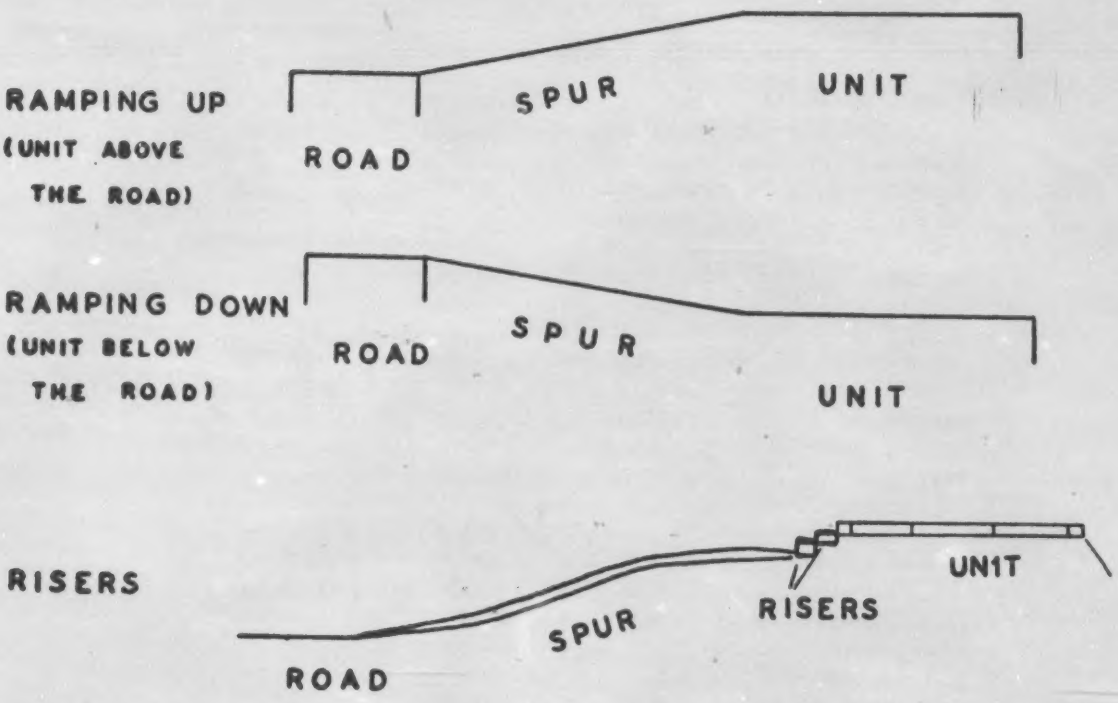
Land Between the Lakes currently is studying alternative designs for barrier-free camping units. The inclusion of units accessible to the handicapped will, we believe, encourage use by persons previously unable to enjoy developed-site camping. The initial barrier-free units each include an asphalt strip, three to four feet wide, inside and adjacent to the crosstie border of the unit. Additionally, one end of the picnic table top is cantilevered. Discussions with campground managers indicate that about 1 percent of all units should be barrier-free. Some administrative control is needed, for the units should be reserved by means of a cable or other suitable barricade across the entrance. Thus, the manager can direct handicapped persons to "reserved" units. When a campground reaches 100 percent, the manager can open the unit(s) for general use.

Ramps and Risers

A situation often occurs where a plot of developable land is on a higher or lower elevation than the road. Filling (to bring a site up to the level of the road) or cutting (to lower the site) are too often used but are neither cost-efficient nor necessary. Both practices often build maintenance problems into

the site. Ramping is the preferred method of reaching a desired contour for a back-in unit from the road. Figure 6 shows a profile of how to ramp. As long as the last 25 to 30 feet of the spur and unit are level--which still may require some cut or fill--ramping will work for the user, reduce construction costs, and perhaps most important, reduce maintenance costs.

Figure 6 - CHALLENGES OF TOPOGRAPHY



Pull-through the pull-off units also may be built above or below the road by ramping with a portion of the spur level enough to contain an R.V. If the road and spur are on one level and the living space is above or below, risers, or steps, can be employed (Figure 6). Risers should be permanent, and should extend the length of the unit to prevent accidents and the erosion that would result from foot traffic over the natural slope between the spurs and the living area. Crossties make excellent risers.

Shade

Optimum shade level depends, to a degree, on factors such as climate, orientation to sun, and campground location in the United States. For example, many campgrounds have units with natural ground surfaces. While these are not recommended, many are still in use and, therefore, require maintenance. Natural ground, particularly when heavily shaded, will not resist compaction and erosion resulting from recreation use. On units with no reinforcement, only minimum shading (about 25 percent crown cover) should be retained.

Reinforced units withstand impact well. Therefore, the amount of shade becomes primarily a matter of user preferences. Research indicates users tend to select units with a moderate amount of shade (James 1970). In the study cited "moderate" shade means about 60 percent of the area is shaded. When treating an area, thin to 50 percent to allow for vegetative growth. Make sure the remaining trees are species and sizes suited to a recreation environment. Young vigorous hardwoods are best; larger trees should be cut as large old-growth trees cannot withstand the pressure of heavy use.

A second factor to consider relative to amount of shade is understory screening. Many plants, such as Japanese honeysuckle (Lonicera japonica) and smooth sumac (Rhus glabra), which make excellent screens, prefer sunlight over heavy shade.

Screening

Establishing a fairly dense stand of understory vegetation between camping units provides a number of advantages: units in a high-density camping area (9 to 10 sites per acre) are separated psychologically from nearby sites, conveying a sense of privacy; heavy screening helps to reduce noise pollution from nearby units and support facilities, such as play courts; vegetative screening is aesthetic and helps to produce a feeling of being in the out-of-doors; screening may be used to soften the effects of unsightly natural or man-made features, such as a badly eroded bank or a sewage treatment facility; and screening can be used to "channel" people toward areas of known impact, such as trails, which can be reinforced.

One difficulty in establishing screening is unnecessary mowing by maintenance crews. They must be instructed not to mow between existing units where you are attempting to establish screens. Mowing between heavily used units may be hazardous to campers and detracts from the "natural" experience available with heavily screened units. In areas being developed, construction crews should leave existing screens.

The best sources of information on types of plants to use in specific locations are university extension services and horticulture departments.

Water Movement

One advantage of reinforced units is their ability to drain quickly. Water percolates well through manufactured sand and does not create mud on the unit. Care must be taken, however, to ensure that water does not create erosion problems around camp units. Reinforced units, since they are above ground level, can be utilized as berms, catching run-off from a watershed and channeling it around the unit. In some instances, a ditch may be required adjacent to the base of the unit.

Necessary cuts and fills may alter existing drainage patterns and create a need to rechannel water. Severely sloping ditches will require armor-plated drainage channels.

Water often is channeled along the side of a loop road. This may create problems where the road meets the spurs of camping units. Water may be moved over the spur or through a slightly depressed channel on the spur. When the potential for erosion is great, a culvert pipe may be placed under the spur, or the road may be built at ground level and the ditch eliminated.

Signs

Signs should always be minimized. In general, only two instances require signs at individual units: those units reserved for the handicapped should be so designated, and all units should be numbered for easy identification. In both cases, the aim is to be informative, unobtrusive, and inexpensive. Since barrier-free units (units for the handicapped) need to be kept closed by means of a cable above, an unobtrusive location for the handicapped designation is on one of the cable posts. Another suitable location for the signing--preferably a stenciled international handicapped symbol--is on the asphalt paving used for access.

At Land Between the Lakes, unit numbers are displayed on 4-inch red Scotchlite curb tape circles that are placed on either the side of the picnic table facing the road or on the electrical outlet post.

In summary, unit design is not simple. Any planning effort requires a considerable amount of conscientious thought. However, the basic concepts behind unit design are not difficult to understand. Common sense and simplicity are the watchwords of design. Units should be safe, generous, level, and usable by campers with all types of equipment.

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SESSION II

RESEARCH/IS ANYTHING HAPPENING?

Research on campgrounds and camping flourished during the 1960's. The Outdoor Recreation Resources Review Commission Report in 1962 documented the need for more outdoor recreation areas and opportunities. The Land and Water Conservation Fund Act was passed and the Bureau of Outdoor Recreation was established to administer the increased funding to meet needs. The strategy of the mid-1960's was to acquire more land and to develop facilities for recreation. A considerable amount of research (especially by U.S. Forest Service experiment stations and by university researchers) was directed toward campground development.

An important change took place during the late 1960's and early 1970's. Land prices escalated rapidly and funds available for recreational development, such as campgrounds, were reduced. Demography played a part as large numbers of college-age young people (the result of the World War II "baby boom") became interested in hiking and backpacking. A greatly increased environmental awareness contributed to decreased construction emphasis. The result was that outdoor recreation moved more in the directions of wilderness concerns, visitor satisfactions, and recreation carrying capacity determination.

With changes occurring in campgrounds and camping as noted in Session I, is any research being done on these changes and/or toward improving opportunities for campground campers? More than that, should any research be done in this area? If so, what kind and why?

Some discussions of camping research began in Session I, with Cottrell's plea for more applied research. The two papers on programming activities for campers and on the "defined site" concept indicate that useful empirical findings can be generated on land management units (as TVA's Land Between the Lakes). Art Magill's paper on campground reservation systems was an example of scattered efforts still being conducted by U.S. Forest Service experiment stations. Another related example would be the Vandalism and Outdoor Recreation symposium sponsored by the Pacific Southwest Forest Experiment Station, Berkeley, California, in 1976.

The U.S. Forest Service researcher who has maintained a continuing research interest in campgrounds and camping is WILBUR LAPAGE of the Northeastern Forest Experiment Station, in Durham, New Hampshire. In particular, he has studied the camping market and the private campground industry, as campground development has been decreased by the public agencies and greatly expanded by the

private sector. His paper reflects his long and continuing experience with research to evaluate the "big picture" of what has been happening in camping.

His observations: Although it is difficult to define a 'campsite,' there are approximately 16,000 campgrounds (9,000 private, 7,000 public). Annual growth in camping participation has slowed from 20% in the 1960's to less than 10% in early 1970's, to less than 5% in the late 1970's. There appears to be an increase in days camped. He concludes that although camping's growth has slowed, an enormous corporate and equipment investment will precipitate efforts to boost camping participation. With this, research (and especially high-quality research) will be in more demand. It is well worth reading carefully his entire paper for the considerable basic insights that it contains.

We then asked representatives of two federal land managing agencies (the most direct 'clients' for which federal forest experiment stations were instituted) to suggest what they see as current needs for research. GERALD COUTANT, representing U.S. Forest Service recreation administration, sees more research needed because changing society and changing public needs and desires have presented new questions. He outlines alternative ways of obtaining research, and pros and cons of each. GERALD PURVIS, representing Corps of Engineers, feels that their more limited land resources (compared to U.S. Forest Service extensive areas) adjacent to reservoirs may call for different solutions. Thus in Fiscal Year 1978 the Corps initiated recreation research efforts through their Waterways Experiment Station in Vicksburg, Mississippi. He calls for practical research transferable immediately for use by field unit managers, and research on user trends and types of users to plan for. He also emphasizes that "We are living in rapidly changing times and our research efforts must give us ways to adapt to trends."

Following the above speakers' emphasis on changing social trends and corresponding needs for information, BOB ESPESETH discussed "information dissemination systems" from the perspective of university extension efforts. He points out that we live in a complex and rapidly changing world, and that when universities are accused of being hesitant to tackle problems, it should be remembered that there is a great deal of "uneasiness and uncertainty about what new knowledge and ideas are needed." He suggests that "from a user point of view, partial information available at the time of action or decision is better than complete information too late." He believes that a more systematic extension approach to identifying users and information needs is needed, and he outlines information dissemination systems being developed at the University of Illinois.

Finally, JOHN BURDE discussed efforts underway to improve the campground research literature information base. He notes that

existing campground research is widely scattered and often unavailable or out-of-print. He outlines a project funded by Land Between the Lakes-Tennessee Valley Authority, and conducted at Southern Illinois University-Carbondale to collect, organize, and make readily available basic campground research information.

For further indications of kinds of camping research presently underway, the reader's attention is directed to Session IV of the Proceedings, which contains contributed research papers presented at the Conference.

THE CAMPING MARKET AND THE CAMPGROUND INDUSTRY: TRENDS AND RESEARCH

W. F. LaPage[1/]

Introduction

The camping market is unquestionably our most studied outdoor recreation market. Four years ago, when we assembled the first bibliography of camping market surveys[2/], we were able to locate 230 published studies. Since then, we have collected over four dozen new ones. Additionally, our research library contains at least three dozen studies of commercial campground operations. With all of this data at hand, it should be relatively easy to describe trends in the sophistication of research having taken place, trends in the number and variety of developed camping resources, and trends in camper demands. Except for a few very general and obvious trends, this is not the case.

As the industry became more competitive, due to rapid expansion in the supply of campsites and a slowdown in the numbers of new campers, market research efforts in the private sector accelerated and findings were less willingly shared. Prior to this time, most camping market research was done by the state universities and one or two federal agencies. Today, the best market research in camping is done on a contract basis for major investors, is guarded and treated as "intelligence," and if you can buy the results at all, they sell for $800 per copy and up. In this respect, at least, the camping industry has apparently "matured." And the camping market, which is served by that industry, appears to have reached a mature rate of growth while it continues to differentiate in order to serve highly specialized segments of that market.

While publicly sponsored research about camping's commercial sector is gradually giving way to corporate research, we find an increasing research interest in state and federal campground management on the part of universities and public research agencies. For example, studies of the costs of providing camping services on public lands have been made in several states. One of the prime beneficiaries of this kind of research turns out to be the private sector! Commercial campground associations are

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1/ Project Leader, Outdoor Recreation Trend Research, USFS, Northeastern Forest Experiment Station, Durham, New Hampshire.

2/ Annotated Bibliography of Camping Market Surveys. USDA Forest Service General Technical Report NE-11, Northeastern Forest Experiment Station.

eager to see that such cost data, now reported in at least three states[3/], are publicized to substantiate their charges of "unfair competition." Another public sector trend in camping research is the move toward the generation of reliable statistical data about all facets of the market and the industry. And, it is worth noting that cooperative research projects involving both the public and private sectors seem to be on the increases--another promising sign of "maturity" on both sides of the industry.

As significant as these trends in research may be, I think you may be more interested in hearing about actual trends on the ground and in the marketplace. So most of my remaining comments are based, not on the hundreds of studies that have been done, but on a very small handful of studies that have attempted to look at the "big picture" of shifting patterns in supply and demand.

The Supply Situation

Most of my data for discussing trends in the supply of developed camping facilities in the United States is drawn from a major forthcoming report of a cooperative study by the University of Vermont and the U.S. Forest Service.[4/]

There still exists no definitive inventory of available tent and trailer campsites in this country, despite more than a decade of intensive public outdoor recreation planning and research by the state and federal governments. An exhaustive inventory by the National Association of Conservation Districts in 1974 located 1.42 million private tent and trailer campsites in the United States. Adding the public sector inventory would result in a total of about 1 3/4 million sites. However, a realistic definition of a campsite or, for that matter, a viable private enterprise campground, would probably sharply reduce the estimate of available developed camping spaces to nearer a million. Since 1967, the Woodall Publishing Company, one of several major publishers of campground directories, has published a fact sheet on the numbers of campsites and campgrounds in each state. Since listings in most directories are based on some minimal quality standards, these data are probably a more realistic view of industry size and growth rates. Similar data is available from other directory publishers such as Rand McNally and Wheelers. The consensus seems to be that we currently have about 9,000 commercial camping enterprises and 7,000 public sector campgrounds, or a total of about 16,000 "campgrounds."

3/ Pennsylvania, Rhode Island, and Oregon are three state park systems having been studied in recent years, and costs as high as $12.00 per night above fees have been reported.

4/ The Campground Industry--Recent National Trends, 97 pages, soon to be jointly released by the Northeastern Forest Experiment Station and the Vermont Agricultural Experiment Station.

Confusion over the number of privately-owned facilities is to be expected. While most states do license campgrounds, some include trailer parks, motels, and cabin courts on the same license. Directory listings have become increasingly selective as a means of quality assurance for their customers. Early directories (in the late 1960's) attempted to be exhaustive and sell their product on the basis of quantity of listings rather than quality. A trend analysis of directory listings is therefore a misleading picture of new industry growth. Whether or not this also explains the differences in public-sector campground numbers reported by directories is unclear. Nevertheless, it is a fact that one major directory shows public sites decreasing by 25%, while another shows an equivalent increase for the 5-year period 1973-1978. The truly unfortunate aspect of this latter situation is that accurate information exists on public sector supply in every federal agency and every state capital, and could be annually assembled at little or no cost!

Given the inadequacies in our capability to monitor numbers of campgrounds, other apparent supply trends must be viewed as biased indicators at best. However, it seems clear that there are distinct trends toward: (1) larger campgrounds (both public and private); (2) more on-site conveniences; (3) more differentiation between sectors ("luxury" versus "primitive"); (3) higher fees; (4) more complex fee systems; (5) and higher development costs. The average private campground in 1978 had 100 developed sites, charged $5.00 per night without hookups for sewage or electricity, and spent $2,300 per site in development costs if it was recently built.

Some previously significant trends in the campground industry which appear to have flattened out to little or no growth include: the rate of new franchising; the western movement in new private campground development, and the volume of seasonal campsite rentals.

A continuing steady growth appears to exist in trade organization membership among campground owners. This component of the industry may be experiencing vigorous growth in response to: (1) a growing challenge of the practice of subsidizing affluent campers who use state and federal campgrounds; (2) threatening public policies in regard to energy availability and environmental safeguards; and (3) the growing jungle of paperwork requirements of service-oriented small businesses.

Probably the single most valuable statistic for monitoring the general health and vigor of this industry is "occupancy," or the percent of developed capacity which is being used during the regular open season. Until 1978, no overall index of occupancy was available for the industry as a whole, however a few individual state campground owner associations such as Florida had begun to monitor occupancy. Also, most public campgrounds keep reasonably

good attendance records from which a measure of occupancy might be developed. In 1978, the National Campground Owners Association, in cooperation with the U.S. Forest Service, began a small-scale monitoring study of occupancy at commercial campgrounds. A national figure of 58 percent occupancy for the period May 29 through September 3 was recorded. Individual graphs of the seasonal occupancy trends are attached to this report for the Northeastern region, North Central, Southern, Western, and total United States. This cooperative project is being continued for the next 4 years and should provide a useful indicator not only of camping trends, but of tourist travel in general.

The Demand Situation

As a result of low-cost reliable techniques for conducting national sample surveys of the general population, we are considerably more knowledgeable about the people who go camping than we are about the places they camp. Beginning with the landmark work of the Outdoor Recreation Resources Review Commission studies of 1960, we find 3-4 million active camping households in the United States. By 1965, the figure was up to 6 million. In 1971, the first of 3 in-depth studies of the camping market identified 13 million. The second U.S. Forest Service camping market survey, 2 years later, found 14 million; and the third, 1978, found 17.5 million active camping households. From an average annual growth in the 1960's of 20%, camping declined in the early 1970's to less than 10%, and in the late 1970's to less than 5%. In terms of numbers of people camping, the growth is still lower as the average household declined from 3.33 persons in 1960 to 2.81 in 1978 (Table 1, Size of the camping market in 1971, 1973, and 1978).

While the active camping market is currently experiencing an annual increase of almost twice the rate of our nation's population growth, the inactive camping market (former campers) is expanding twice as fast. In 1971, one-third of all households contained at least one adult who had camped. By 1978, one-half of the households had camped. However, active campers were only 19% in 1971 and 23% of all households in 1978.

An increase in the numbers of people having camped can only occur with a decline in the number of "potential campers"--people who have thought about camping and would like to try it. Beginning with the 1971 USFS study, we have been able to monitor this decline--from 12% of all households to 6% in 1978. Of course the potential camping market gradually absorbs replacements from those who never considered going camping.

Trends in the types of camping equipment in use during the 1970's are generally inconclusive on the basis of the three Forest Service surveys (Table, Type of shelter used on last camping trip).

However, the market for recreational vehicles appears to be very sensitive to changing conditions (Table 3, Recreational vehicle shipments) showing strong annual growth throughout the 1960's, a minor setback in 1970, with a resurgence to an all-time high in 1972-73. Recreational vehicle shipments slipped in 1974 to about one-half of their 1972 levels, and showed a strong recovery in 1976-77. To what extent the 1974 slump can be attributed to the energy situation, and to what extent it may be a result of over-production in preceding years, is unknown.

The frequency of participation by active campers appears to be increasing--or at least is perceived to be on the increase by campers themselves. In 1973, 28 percent of active campers in the USFS National Survey reported that their participation had increased in recent years; in 1978, the figure was up to 40 percent of active campers. The median number of days camped in 1978 was 6; unfortunately comparable participation data was not collected in the 1973 survey. In the 5-year period, 1973-1978, the proportion of campers visiting private campgrounds was up; while at the same time, renting and borrowing of camping equipment declined from 37 to 31 percent of active campers.

The demographics of the camping market are unlikely to experience any marked change from year to year, or even over a ten-year period because of the size of the market. However, some minor trends seem evident between the 1971 and 1978 national surveys. The age distribution of active and potential campers appears to be getting skewed toward the upper age groups; the median age is higher, and the under-30 age group does not seem to be represented in proportion to their numbers in the population. Since 1971 the non-white share of the potential camping market has more than doubled, while the active market has remained a constant 3%. The regional distribution of potential campers has shifted markedly to the South where about 1 out of every 2 potential campers now lives.

Trends in Camping's Image

Despite enormous changes in the quantity and quality of available camping opportunities and in the nature of the demand for them, the ways in which Americans perceive camping as an outdoor activity seem surprisingly resistant to change. While the popular image of camping as "roughing it" may have all but disappeared, its popularity has never been higher than it is today. In an attempt to assess the camping market's growth potential, we have used the national household surveys of 1973 and 1978 to examine camping's popular image. By converting a dozen different adjective rating scales, such as "convenient," "uncrowded," "safe," and "pleasant," a composite image of camping emerges that is substantially more favorable than unfavorable

among the general public. And, there are very few significant differences in these images among the major camping market categories over the past five years (Table 4, Camping's changing image).

Perceptions of camping are particularly important if they act as barriers to participation. For example, if most people who would like to try camping see it as "difficult" or "complex," that perceived "difficulty" becomes a real barrier to their trying it. In 1973, 50 percent of all prospective campers saw camping as being "easy." By 1978, the percentage was down to 41. Similarly, "comfortable" dropped from 54% to 39% for this same group; and "fun" went from 57% to 42%. Perceptions of "crowding" increased from 35% to 43% for potential campers. Among temporarily inactive campers the same kinds of perceptual barriers limit their probability of returning to the active market. And, perhaps most importantly, increasingly favorable perceptions among active campers could reflect improving conditions and reduced intentions of dropping out of the market. Of the 12 image factors studied, 8 showed higher positive images and 4 had higher negative images in 1978 than in 1973. Specifically, active campers in 1978 seemed to feel that camping was less crowded (+10%), more convenient (+8%), interesting (+5%), easier (+3%), and more comfortable (+3%), than they did in 1973. On the other hand, active campers were also less likely to see it as safe (-9%) and fun (-5%).

Conclusions

We have discussed a number of trends among components of the camping market and the campground industry. Some of these are being monitored, many are not. The change which has occurred may only be a hint of what is to come if we consider only a few of the forces impinging on this market. For example, the developing energy situation could drastically alter the geography of successful camping enterprises. Those within a full gas tank distance of major metropolitan areas could boom, while those beyond might fail in large numbers. Conversely, the American love for travel and camping combined with a weekend closure of gas stations, could result in a whole new mid-week peak in leisure travel patterns!

One fact is inescapable among all the trends--camping's growth has slowed to a fraction of its former rate. With the enormous corporate investment this country has in camping equipment, and campgrounds, it is logical to assume that a considerable investment in marketing and in new technology will be made to encourage that growth rate to begin climbing once again. Incentives to induce more camping and to create more campers are limited only by the imagination that corporate treasuries can buy. Some of the obvious "innovations" to look for in the

immediate future are: (1) more camping opportunities in and around urban areas, (2) more camping as a part of tour packages for foreign visitors, (3) more energy-efficient small motor homes and their increased use as the family's second car/secondhome, (4) an increase in the number of season-long rentals of campsites with commensurate increases in camping resorts and in average visit lengths along with decreases in average camping miles travelled, (5) greater use of "camping packages" or regional "discovery" promotions centering on camping/recreation tours, and many more privately-operated campgrounds on public lands.

Along with efforts to increase the volume of camping business, you should expect to see a variety of competitive moves to shift the current distribution of market shares from the public sector to the private.

As I said at the outset, the camping market is our most studied outdoor recreation market. Because it is such an excellent indicator of leisure travel, it will continue to be closely monitored. Active campers, and even inactive campers, greatly exceed the average participation rates for all major outdoor recreation markets (Table 5, Percentage of active campers ...participating in selected recreation activities). Campers participate in boating at twice the national rate. The same is true of their participation in hiking, hunting, ORV use, snow skiing, and canoeing. Participation by campers in selected activities appears to be a very sensitive indicator of trends in those activities. For example, in 8 of the 10 activities monitored in the 1973 and 1978 National Camper Surveys, participation trends of campers almost exactly parallel those of the general public.

Finally, and most importantly to this audience, research will be more in demand. A few years ago you could not have found a job in the private sector as a recreation market researcher. Today, the government is looking at industry studies of the camping market and industry is encouraging more government research. Both are far more quality conscious in their expectations. They are looking for specific answers with a high degree of reliability. As planners, they want to know just what today's camping market wants in the way of facilities, services and programs. As investors of private or public funds, they want to know current costs. As businessmen and professionals they want to know utilization rates, satisfaction levels, and something about resource condition and trend. The market for quality recreation research has never been better!

RESEARCH ON CAMPING: IS MORE NEEDED?

Gerald Coutant[1/]

Subject - Research: Is Any More Needed?

I. The first question to ask is, "Why would we need more research on public campgrounds and other recreation facilities?"

--For the Forest Service, the answer to this question must be put in terms of serving the public. Therefore, our research focus should be in response to public needs, demands, and use of the facilities we provide the public.

--Management direction and agency role in outdoor recreation is the next point.

II. Let's look at some of the characteristics of providing a recreation experience for the public.

A. Changing Public Interest

By comparison with previous decades, the past ten years have seen a fairly rapid change in the public's interests, desires, and requests of land managing agencies in general, and in recreation opportunities specifically. Some reasons for this are:

1. Greater mobility, so that urban residents are more and more visiting and camping in rural Forests. Thus, we must respond to the needs and requests not only of our rural neighbors but also of urban users.

2. Rural or urban, there has been an expansion in the kind of recreation experiences which the public thinks should be available on public land. Along with this is an increase in the number of people in every special interest group. Some examples are:

--More public demand for backcountry experiences - backpacking, wilderness camping.

--Special facilities for handicapped citizens, such as special play areas and equipment, and parks and campgrounds for the handicapped.

1/ Director, Outdoor Recreation, USDA Forest Service, Southern Region, Atlanta, Georgia.

--Recreation experiences which inform and educate, such as those focusing on America's cultural heritage - prehistoric and historic sites, displays, and Visitor Information Service Centers. There is an interest now in spending one's vacation by being a participant in a heritage resource - for example, working on a "living history" farmstead or participating in an archaeological dig.

So meeting the public's recreation needs means responding to an increase in the types of recreation experiences which Americans want, whether they are urban or rural, or special interest groups.

But we need to know - and therefore need research on:

--The amount of demand for particular kinds of facilities.

--How great the use would be in specific locales.

--What the cost would be - and so on.

--The carrying capacity is still a problem for our managers.

B. Cultural and Societal Change

Another kind of change which agencies such as ourselves must respond to are changes in people's behavior patterns and, increasingly, conflict between the "mores" and cultural traditions of different user groups. Here we get into the area of sociology, social anthropology, and other kinds of behavioral studies.

1. We sense that the potential for situations of social conflict is increased by:

   --The greater use by urban visitors of rural Forests. The differences between the local residents and the urban users sets up tensions which can easily erupt into violence. Example: Appalachian Trail problems - North Georgia fishermen.

   --The greater use by people of various ethnic backgrounds, not just rural/urban. Again, different expectations and behavior sets up tension.

2. We see a need for research in this area of social conflict, to inform us about such things as:

   --What will cause incidents of conflict.

--Where and when is there a high possibility of this occurring.

--Why is there conflict at some recreation sites but not at others on the same Forest.

--What can the Forest Service do to try to alleviate the problem.

We have already sponsored some research (Dr. Jim Jordan, last summer) in this kind of problem.

C. Carrying Capacity

On the one hand, we wish to encourage the public use of national forest land. The other side of the coin, however, is that the greater the use, the greater the potential for resource damage - natural resources, cultural resources, and human resources.

--Our information from the past several decades about how to deal with resource damage is valuable, but more is needed. For instance, we are concerned about more types of resources now than previously, and the kinds of impacts are different as well as of greater intensity.

--For example, how do you manage the impact of thousands of visits to a fragile archaeological site? It can be done, but some research on how to best do it is needed.

So the answer to the initial question is, we need more research because: (1) Changing society and changing public needs and desires has presented new questions. The Forest Service would rather anticipate the problems and have some possible solutions instead of only responding to crises. (2) The need to protect the resources, and therefore questions about different resources and different kinds of impacts are another reason for research. (3) The need to manage the human resources - specifically to reduce conflict situations is another.

III. Who Should Do the Research?

A. Institutions.

1. Naturally, some background on the particular kind of research is an important consideration. Usually in-house units or universities will be the most likely to have expertise. Examples: Colorado State University - School of Forestry and Natural Resources.

2. A Consortium.

Some research can best be handled by a consortium usually because no one university has all the expertise needed for a project or subject area. This helped to reduce competition redundancy.

3. F.S. Experiment Stations and Research Service, but most of these stations are in the West and therefore tend to focus on Western kinds of projects.

4. Cooperative State Research Service (CSRS). The funds provided for Forestry research under the McIntire-Stennis legislation have given the colleges some help in doing research on outdoor recreation.

B. Forest Service Needs. Some specific approaches to focus on Agency needs include:

1. Continuing close tie between an agency and a university or research institute known to have expertise in the particular specialty of interest.

--A cooperative agreement is an appropriate mechanism.

--Example: For studies of social conflict between local residents and users of a Forest in Appalachia, we need sociologists - anthropologists with research experience in Appalachian culture and visitor/local interaction.

C. An area for cooperation in research which is more or less unexplored by agencies is research by the National Science Foundation, National Endowment for Humanities, National Endowment for the Arts - which currently has a program on rural cultural traditions and society.

IV. Alternative Ways of Obtaining Research.

From our experience we see these alternatives:

A. Single agency sponsored, for example, through Intergovernmental Personnel Act, Contract, Cooperative Agreement, In-House project.

Advantages: Agency's specific research need is total focus of project. Disadvantage: Funding.

B. Consortium of Agencies.

Advantages: Several sources of funds, cross-stimulation in research. Disadvantage: Administrative problems in cooperative funding; an agency's particular research interest may have to be forced or changed somewhat to meet the group needs.

C. Cooperative Agreements between an Agency and a University.

Advantage: Mutual research interest; each share the cost of the project. Disadvantage: Sometimes the research interest of the university overwhelms the applied needs of the agency.

NEEDS FOR CAMPING RESEARCH BY THE CORPS OF ENGINEERS

Gerald T. Purvis[1/]

Recently many of our managers attended a workshop in campground management and design at Paris Landing State Park conducted by the University of Tennessee at Martin and Dick Cottrell's people here at TVA. I would like to read the stated purpose of that workshop: "Historically, administrators and managers have inherited campgrounds which were either very poorly planned, never planned, or outdated through continuously changing camping demands. As a result, our campgrounds appear overused, worn out, and mismanaged. Rather than learning from research or lessons from the past, planners today (including consultants) continue to 'invent the wheel' and to 'design' dollar gobbling maintenance monsters. This workshop will address itself to the problems initiating these symptoms by imparting some of the newest concepts and techniques in campground layout, impact resistant campsites, construction, and proper management to improve existing facilities." Therein lies our need for research efforts in the Corps of Engineers in relation to camping.

First to help you to know what we need and what we are planning in our agency, I should describe what is happening in the Corps of Engineers in regards to research in the recreation resources function of our mission.

Prior to FY 78, virtually nothing existed in recreation research. The Corps efforts in research were directed toward dredging, concrete, dam safety, and navigation. In FY 78, the Corps, through our Waterways Experiment Station in Vicksburg, Mississippi, initiated a recreation research program with the establishment of a research work unit to develop a decision-oriented user information data system. The purpose of this system was to refine and develop our existing data system to meet our recreation planning, management, and research needs. In FY 79 and FY 80, our research efforts have been greatly expanded to consider work units that we feel are priorities in fully establishing our research efforts. For FY 79 we have scheduled five work units for research: first, we have established a recreation research and demonstration system, or the selection of sites and projects for the conduct of recreation and natural resources research. This work unit will provide for the development of baseline data relative to the physical

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1/ Chief, Recreation-Resource Management Branch, Ohio River Division, Corps of Engineers.

environmental, social, and economic characteristics of our projects and the continuation of a system for research for the unit. The data for this work unit will be collected in general through our existing data collection system by field personnel. The projects selected for research units are located across the U.S. using numerous parameters. They should provide for a broad base of data; the second work unit is to develop design criteria for carrying capacity and user behavior related to the nature of the site. Demand characteristics, variations of design of access, facilities, and open space requirements will be researched. Although the Forest Service has conducted research in this area, we feel our limited land resources may require different solutions; the third work unit will be to develop specific planning, design, and management criteria pertaining to visitors safety and security, and descriptions of field techniques and procedures to implement them. Project and visitor security has become one of the major problems facing our managers today. While we do have contracts for additional law enforcement services for the first time this year (and very successfully I might add), we consider this as only a partial answer to our problems; the fourth work unit will be to determine cost efficiency of contracting operations and maintenance as opposed to conducting these functions in-house. The purpose of this unit will be to identify advantages and disadvantages of each method to meet our critical need, to get the most for our dollar, and assure wise use of allocation of personnel; and our fifth work unit will be to identify and evaluate alternative concessionaire market strategies, the impact of our management practices on such strategies and the potential for profitability of concessionaire opportunities at Corps projects. We have found that in many instances the old concepts of concessionaire developments are not meeting our current needs.

For the immediate future, a number of work units are being considered for establishment. Among these are (1) to determine the processes and mechanisms of establishing a comprehensive intra-agency information transfer system. At present, information transfer depends almost solely on the initiative of the individual manager; (2) development of cost efficient planning and design standards for recreation roads and sanitary facilities where we now spend 65 percent of our development cost; and (3) determining from a policy standpoint to what extent should facilities for the handicapped be planned. In the past, we have built handicapped facilities at every site even though many were inaccessible to the handicapped. These are only some of the many mission problem statements that have been submitted and entered into the recreation research program. Others which have been suggested are:

1. Interpretation at Corps projects.

2. Environmental problems related to recreation development.

3. Lake use prediction models.

4. Measuring recreation value, from the social and economic viewpoint; and

5. An institutional analysis of recreation to determine the role of Federal and non-Federal agencies.

What are our needs in research in camping in the Corps? Many of our needs will be discussed in other presentations during this meeting. First, we must recognize the administrative and agency policies regarding recreational development. Under established administrative directives, we as an agency are restricted from expansion of recreation facilities unless a cost-sharing arrangement, to include the operation and maintenance of facilities by non-Federal agencies, is consummated. Our agency directives state that we are to do a good job at what we have been charged to do, but that expansion should be the responsibility of others.

The needs in research for recreation in the Corps, therefore, should lend itself to our foreseeable future. Any research must be practical and be transferable immediately to use by the manager. We cannot afford the luxury of research for research sake. Our efforts must be acceptable to the field managers in order to give us the opportunity to demonstrate the theories presented in the research. Our research must also remain flexible to meet the needs of the manager as demonstrated by public use demands. The current Corps research system, with field coordinators having direct input into selection and prioritizing of work units, should be able to maintain this flexibility. The manager with a problem can submit a mission problem statement that can become a research work unit.

For the near future, we need research into the moods of the public to determine trends of public uses as discussed by Mr. LaPage. As a matter of fact, he and Jerry gave my talk--common threads. We need to obtain reasonable predictions of users and types of users that we should plan for. In the past we have continued to build facilities when public use of those facilities has already begun to indicate a need for change. Our user is a fickle public. What works today or what has worked in the past may not be the answer tomorrow. Facilities and management policies must be found that will give us the flexibility to meet these needs. We are living in rapidly changing times and our research efforts must give us ways to adopt to trends.

Research, or at least transfer of information on effects of economic conditions on camping trends, is a basic requirement to determining where we go from here. Will the spiral of influence

continue as is predicted by camper equipment industries, or are we facing a shift back to a more austere short-destination camper?

In 1977, 31.8 million recreation days were experienced at the 1,020 campgrounds managed by the Corps of Engineers. We need to know these visitors better! Some of our current and proposed work units address this problem in the Corps. The facilities required for transit campers vs. those required for destination camping or "incidental" campers, are markedly different. By the "incidental" camper, I refer to the camper we now are experiencing where the camper elects to use our campground for convenience to other developed activities, such as amusement parks, which are his principal activity. An area of great concern to us in the past few years is how to minimize the impact of the ever-increasing number of visitors to the natural environments of our projects. The overuse and often misuse of the recreation areas under our jurisdiction have created compaction, erosion, pollution, and accumulation of waste at most of our projects. We must find ways to identify these problems in our planning and design stages. We must also find better ways to eliminate those problems that already exist, whether it be site-specific control of the visitor, curtailment of users into areas, closing of areas, or other management techniques.

Last, another area which is now, and will intensify as a problem in Corps camping areas, is the deterioration and obsolescence of current facilities. Our efforts in research will need to identify these problems to assess their impact on the project and on the user and to identify methods and funding by which they can be corrected. Our facilities, as I am sure most of yours are, were built when trends were for tent camping, had minimal sanitary facilities, multiple entrances, and mixed user types such as camping and picnicking.

I believe the research efforts of the Corps, while obviously new and still under development, offer us an excellent opportunity to find solutions to many of our continuing problems. As I stated earlier, however, we cannot conduct research for research sake simply to gather data. We have to convert our research into reality. We must recogn'ze that we do have limited personnel resources and that our research efforts must be toward reducing manpower needs and cannot require cumbersome data gathering techniques that will impact on these requirements.

INFORMATION DISSEMINATION SYSTEMS

Robert D. Espeseth[1/]

Many state and federal agencies have established Technical Assistance programs but the effectiveness of these programs have varied widely. Agencies such as the National Park Service, Heritage Conservation and Recreation Service, Environmental Protection Agency, and the Cooperative Extension Service all have Information Dissemination Systems. One of the best dissemination programs is fostered by the Cooperative Extension Service (CES) because of the outstanding system of contacts through the offices and advisers located in nearly every county in the country. Admittedly, the CES has been highly oriented toward agricultural interests; however, an increasing interest in providing broader support in the community and resource areas has led to more recreation specialists being added to state staffs. Through this broad network of contacts new audiences can be more effectively served.

The Office of Recreation and Park Resources (ORPR) at the University of Illinois is a jointly funded venture of the Cooperative Extension Service in the College of Agriculture and the Department of Leisure Studies in the College of Applied Life Studies. Perhaps a strange combination in some people's mind, but a very effective one in my estimation. We work throughout the State with park and recreation agencies at various governmental levels, with private recreation enterprises, special institutions and many other diverse groups and organizations. We provide them with a variety of technical information and expertise, as well as doing applied research in selected areas. We have specialists in the community, therapeutic and outdoor recreation areas and an educational resource specialist, as well as having access to the resources of the University. We work not only through the Cooperative Extension Service channels but also through professional associations, the Continuing Education outlets of the University, and other avenues to disseminate information.

The demand for new ideas to help solve major national and community problems is a significant challenge to institutions of higher learning. Problems today at every level seem larger, more threatening, and more difficult to solve. At the same time there is a growing feeling that the colleges and universities which

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1/ Outdoor Recreation Specialist, Office of Recreation and Park Resources, Cooperative Extension Service and Department of Leisure Studies, University of Illinois at Urbana-Champaign.

should be able to help solve problems are not helping, and frequently seem afraid to try.

Colleges and universities see their basic roles rooted in the functions of knowledge itself--the discovery of new ideas and new knowledge in research, the transmission of knowledge and new ideas in teaching, and the utilization of knowledge and ideas in helping solve problems through extension and public service. The three legs of the venerable academic stool.

The intricate interrelation among these functions is critical. It is in these interrelations that the functions of knowledge are tested as former President Perkins of Cornell (1965) observed: "Knowledge acquired must be transmitted or it dies. Knowledge acquired and transmitted must be used or it becomes sterile and inert. Even more, the chemistry of knowledge is such that the very process of transmission together with the discipline of application, stimulates and guides those who work at the frontiers of knowledge.

"Knowledge is in many respects a living thing--it grows and changes, and various of its parts are replaced as they become obsolete, but the dynamic nature of knowledge is traceable to this interplay and tension with its acquisition, transmission, and application. It is this interaction that creates the needs for new knowledge, that brings inaccurate teaching to account, that shows what could be rather than what is. Taken separately, the three aspects of knowledge lead nowhere; together they can and have produced an explosion which has changed the world."

Such pretensions of higher education are more than rhetoric, although there is never any shortage of rhetoric. There is a deep and continuing concern with colleges and universities about the interplay among research, teaching, and extension/public service programs. Even when there seems to be an evident lack of concern, there is, at the same time, substantial uneasiness and uncertainty about what new knowledge and new ideas are needed and how to put ideas and the results of research to work to help solve problems and improve the well-being of people (2).

Some Factors Which Limit the Communications of New Ideas

Despite the good intentions of researchers, educators and users of research, information and ideas, one can readily identify a number of factors which make communication among them difficult and relatively ineffective:

-lack of a system which effectively links users and researchers, including a clear identification of who the users are,

-researchers designing research projects without direct contacts with potential users, and frequently with little information on their views of what the real problems are,

-users not aware of what research is available, and not having a voice in the formulations of the research projects,

-difficulties researchers often face in accepting the fact that from a user point of view, partial information available at the time of action or decision, is better than complete information too late,

-lack of appropriate, periodic research information releases and publications for users which interpret findings and adapt them for potential use,

-research which has not been made an integral, continuing part of a broad program and the evaluation process (2).

What we are confronted with then is a major dilemma which has been kicking around a long time. On one hand there is the great needs of research users, some of which were previously mentioned. On the other hand is the great promise of the research community and the opportunities for continuing education and public service, through such avenues as the Cooperative Extension Service, to produce and help put to use new research and ideas and to help define alternative ways of dealing with problems. I feel that both groups are frustrated and searching for a better relationship.

What is needed is a new partnership between users and researchers--a partnership defined by two essential conditions:

1. Involvement of users and potential users of new ideas with researchers in exploring difficulties in the functioning of recreation delivery systems and community services, in identifying specific issues and problems, and in defining problems to be researched.

2. Continuing user-research contact throughout the research process, including feeding back of research findings and interpretations on problems the users helped identify.

User-researcher involvement would be an essential feature of the partnership, but it would be something more. It would be a basic strategy to improve communication and facilitate improvements

in programs and services. When users and researchers are jointly involved in the formulation of problems, and where there is continuing contact throughout the research process, interest in research findings is increased (2).

The feedback and interpretation of findings can be more effective. It follows also that the utilization of findings is more likely to occur.

There is general agreement among people in the area of dissemination services that marked improvements are needed in research information service and the guidance and funding of recreation research.

Certain forms of information serve the needs of all types of recreation professionals and should be their shared property. Access to mankind's accumulated store of facts and ideas about recreation is, however, severely inadequate. The information-sharing problem is made especially difficult by the wide spectrum of disciplines--each with its own information dissemination network--which are producing research related to recreation. The following may be some opportunities for improving access to needed information and opening channels of communication among and between researchers and practitioners (users) in the recreation field.

1. Common Sources and Media

   a. Quantitative recreation data banks. Data banks for quantitative information on recreation resources, facilities, and behavior should be established on an international, nationa, and/or regional basis. They should be kept current by timely, well-designed, reliable inventories and surveys.

   b. Methodology banks. In an interdisciplinary field like recreation, researchers need a source of information about research methods which may be transferable from other problems or disciplines to the problem at hand.

   c. Bibliographic control. The literature of recreation is certainly one of the most diffuse, chaotic, and inaccessible bodies of writing which any profession has yet contrived to inflict upon itself. A bibliographic storage and retrieval system should be established which would produce better custom searches and a recreation and leisure abstract journal.

d. Current research information. The existing storage and retrieval system for current recreation research should be continued and improved. HCRS, or someone, should begin to publish the Recreation Research Registers again on a regular basis, and investigators should submit timely Notices of Research Project to the Smithsonian Science Information Exchange (1).

A National Center for Recreation Research has been proposed off and on over the last 15 years. In spite of the obvious advantages, support for the National Center idea has been far from unanimous. It appears that such a Center would be less attractive to agencies which have their own recreation research capability than to agencies which lack such a capability. The Center could bring unusual resources to bear on present weaknesses in information dissemination and related educational programs. It really needs some dynamic leadership, a major funding kickoff and a long term commitment by some agency or organization to follow through with the Center. That is a big order, apparently too big so far. Maybe the Land Between the Lakes concept could be expanded to incorporate a broader approach like the Center.

From the standpoint of major efforts by the Cooperative Extension Service to address some of the research and dissemination problems related to recreation, I would mention, for example, Vermont, Michigan, Wisconsin, Minnesota, Missouri, Indiana, Kentucky and Illinois as states who have committed significant funding and staff to recreation oriented problems.

At the University of Illinois, one of the major goals for ORPR, as expressed in "Thrust for the Future," a long range look at where we are hoping to go, is--To Develop and Disseminate Information Resources. To accomplish this goal we plan to:

-develop a research tabloid to disseminate completed research in parks, recreation and conservation in a form easily readable by non-researchers with stated implications for use,

-develop publications as dictated by a Needs Assessment Study,

-formalize "packages" of informational materials on Leisure Service subject areas most commonly sought,

-provide additional technical assistance and consultation services (3).

The role of a new specialist being proposed, the Evaluation and Research Specialist, would encompass the following areas of work:

1. To coordinate the location, assessment, translation and dissemination of pertinent research generated from ORPR, the Leisure Behavior Research Laboratory, other disciplines at the University of Illinois and the sources throughout the nation and the world.

2. To provide technical assistance in the design and development of applied research under the direction of ORPR staff specialists.

3. To conduct applied research aimed at providing a valuable baseline of descriptive information regarding the development of leisure delivery systems.

4. To evaluate the effectiveness of the wide scope and range of ORPR services.

The following represents a specific example of a major responsibility which would be undertaken by the Evaluation and Research Specialist.

Leisure Services Research Dissemination Project

I. Rationale for the Project

The basic objective of any continuing education program, and of the Cooperative Extension Service in particular, is to communicate effectively new knowledge into immediately usable information for professionals in the field. A most pressing problem is the dissemination of completed research to those people in the field who can and should make use of the results. This is predicated upon the practicality of the research and the generalizability of the results, but the problem remains. Who is to take this research, translate it into layman's terms, make some suggestions for its immediate or long-range use and publish the resultant information in a readily accessible form? Cooperative Extension has done this consistently for the Agribusiness community and followed up with short courses, seminars and personal interpretation.

The professional field of Leisure Services has now come of age and is actively and competently attacking the many problems which may be researched. However, no consistent plan of research dissemination has been pursued to date. There are over 1000 members of the Illinois Park and Recreation Association, for example, who are the professionals in the field. They find their role consistently shifting; new technology and procedures being thrust upon them; new trends and new knowledge emerging at an ever more rapid pace. They need to be able to utilize research to help them make these "problems" into "opportunities." In addition, an almost equal number of lay board and commission members of the Illinois Association of Park Districts has recognized the problem and taken the first step (with the practitioners) toward some help. A joint committee of the two organizations,

IPRA and IAPD has, with University assistance surveyed the State of Illinois and documented the areas of prime concern. This listing of needed research will serve two purposes. One, it is a guideline for researchers in developing new inquiries. Two, it is a guideline for a literature search to find the answers, or partial answers, already available.

II. Description of the Project

ORPR is, as the public service wing of the Department of Leisure Studies and a segment of Cooperative Extension, the logical point to undertake the development of such a dissemination project as a public service function. Indeed, we have had this in our plan of work for the past three years but have not found the manpower to carry out the project (3).

We are now working with a consortium of several universities in Illinois which offer programs of professional preparation in Parks and Recreation to jointly search the literature and abstract studies on a division of work basis. The abstracted studies will be edited and compiled by ORPR and a tabloid will be published periodically for use by the professional in the field. The first of these will be out by mid-November in time for the IAPD-IPRA Annual Conference.

Another relatively recent effort to provide opportunities for the university faculty to present research findings and recent technological information to practitioners has been the creation of the Technology Transfer Series. This is a continuing education function established in 1976-77 and consists of six (6) to eight (8) one-day intensive seminars. Each seminar, headed by one or two faculty members usually from the Department of Leisure Studies, is conducted for about six (6) hours on campus for a limited number of participants. The program has addressed a wide variety of subjects and has been well received. It has been expanded to include faculty in other related disciplines this year.

I feel very fortunate to be a part of the ORPR team because we have had the support of the Cooperative Extension Service, which has opened many doors through that system; and the Department of Leisure Studies, which provides us with a vehicle to reach students in the classroom setting. We hope that there will continue to be active support for our efforts as the reorganization of USDA unfolds. The social and economic impacts of recreation, in its many forms, is being felt around the country. As the "movement and industry" come together as a more cohesive force, many feel that agencies will "see the light" and place recreation in proper perspective, with a significantly higher priority than has been the case in the past. It will be interesting to watch.

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REVIEW OF EXISTING CAMPGROUND RESEARCH: AN EMPIRICAL APPROACH

John H. Burde III[1/]

An all-pervasive problem in resource management is the communication gap between field managers and researchers. Managers require solid input data and information on new methodologies to be able to make good judgments in their decision-making. Unfortunately, many research results available are not in a usable form or are so scattered and incomplete as to be of little value in the field. Further, many research publications are so theoretical to be of no value to field managers.

Conversely, there is a large quantity of quality research results available. However, many managers simply do not make good use of this available information.

Recreation in general, and campground management in particular, are typical of this phenomenon. There have been innumerable studies conducted on campground management, operation, and design. Unfortunately, the results have been published in a lengthy list of publications, too lengthy perhaps for a single individual to synthesize or utilize.

A brief review of the sources of published information on campgrounds is in order at this point. Numerous agencies and organizations have published research results in the field of camping. Following is a brief description of each.

The United States Forest Service has contributed a great deal to the body of knowledge on camping. Each experiment station (except the Southern and Pacific Southwest Stations) routinely publishes results of current research in recreation. Many of these studies directly involve campgrounds. Forest Service research publications are widely distributed with many recreation managers, planners, and educators on the mailing lists to receive the latest station offerings.

Frequently, National Forest Management publishes information useful to recreation managers. This information is normally available at the regional office level. An example is an analysis of "Recreation Carrying Capacity," published by the U.S. Forest Service, Northern Region (1972). Included is a methodology for determining carrying capacity in campgrounds.

1/ Assistant Professor, Department of Forestry, Southern Illinois University-Carbondale.

The Division of Forest Environment Research in the Forest Service Washington office has in the past published a listing of recreation research publications including government publications, periodicals, theses, and dissertations. Unfortunately, the citations are not annotated.

The National Park Service also contributes a great deal to campground research in its Park Practice Program. The Park Practice Program is a cooperative venture of the National Park Service and the National Recreation and Park Association (NRPA). The Park Service has responsibility for the magazine content while NRPA is responsible for printing and distribution. The publications of the Park Practice Program are described as follows:

1. Trends. Three out of four issues of Trends are 48-page theme issues devoted exclusively to topics of interest as determined by readership surveys and meetings with an advisory committee. The fourth issue presents articles of interest at large to park and recreation practitioners. Campgrounds are frequent topics.

2. Grist. Grist is an 8-page bimonthly which might best be described as a popular mechanics publication for people in parks and recreation. The articles are usually submissions from the field, material submitted through the National Park Service incentive awards systems, and research in the field done by the editorial staff. The goal of Grist is to disseminate practical ideas now in use or on the drawing board. Included are maintenance ideas, construction techniques, design concepts, management and administrative solutions to cost reduction, energy conservation, and personnel limitations.

3. Design. Design is a 16-page compendium of plans for structures applicable in park and recreation settings. It is published in a loose-leaf format. Included are easy-to-build practical structures as well as more novel and experimental ideas. Further information concerning the Park Practice Program can be obtained from:

   Division of Federal and State Liaison
   National Park Service
   U.S. Department of the Interior
   Washington, D.C. 20240

In 1976, the National Park Service began an additional publication entitled Parks. It is described as "an international journal for managers of national parks, historic sites, and other protected areas." Parks is a cooperative pilot project of the National Park Service and Parks Canada. It is produced in collaboration with FAO, UNEP, UNESCO, and the organization of American States (OAS). The material covered is international in scope. Campground information is frequently included.

Unfortunately some agency effort in campground research remain in the file cabinet. The Tennessee Valley Authority at Land Between the Lakes is an example of what can be done to remedy this. TVA is publishing a series of "state of the art" documents of various aspects of recreation. The first in the series is "Camp Unit Design Guidelines," a detailed description of Land Between the Lakes policy in campsite construction. Included is site selection, size, construction methods, style, shading, screening, and signing. Future guidelines will be published on campground design, programming, and trail development.

University personnel are quite prolific in campground research. In Land Grant universities, many of the publications come out of the agricultural experiment station. Funding comes from numerous sources.

Research results are also published in various journals. Unfortunately, the field of recreation management has no unique outlet. The Journal of Leisure Research and Leisure Sciences publish recreation research, but both stress the behavioral and social aspects. The Journal of Interpretation, a relatively new periodical, publishes articles pertaining to interpretation. To reiterate, recreation management has no journal outlet per se; so dissemination of new information is at times difficult.

Recreation information is not currently catalogued into a retrieval system. There are a wide variety of sources of published material specific to a particular topic making information retrieval difficult. Two rather lengthy literature reviews have been undertaken (Cordell, 1976; Lime, 1974). Both however, were limited in distribution and information presented.

A recent article by Kinch (1978) described information retrieval systems in several disciplines of resource management.

It is obvious, then, that a new bibliography of campground literature would be useful. Such a bibliography will be available in late 1979. Dr. Kenneth Chilman, Dr. John Burde and Dr. Douglas McEwen of Southern Illinois University are preparing a new campground bibliography to be based on an updated literature review. This updated review is being funded by Land Between the Lakes, managed by the Tennessee Valley Authority. Government

documents, periodicals, and selected theses and dissertations will be reviewed and annotated. Unpublished materials will be utilized where appropriate as well.

A library of campground literature will be assembled and housed at Land Between the Lakes. Out-of-print documents will be photocopied and placed in the library whenever feasible.

The format of the bibliography will be to present campground information in prose style. Important articles will be cited and briefly annotated. At the end of each section, an additional list of sources of information will be provided.

The bibliography will be presented in an easily readable form so as to be useful to campground managers, designers, and planners of all levels of expertise. The sequence of topics presented is yet to be determined.

In conclusion, it is clear that a bridge is needed to connect currently available recreation research to field personnel. Hopefully, an updated and expanded bibliography will provide such a bridge. The result will be better informed personnel and a more efficient use of resources and funding.

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SESSION III

FUTURE NEEDS/WHAT ARE THEY?

This session was designed (1) to remind participants of the many campgrounds existing that will need attention in terms of future trends and improvements, and (2) to obtain inputs from a wide range of camping interests as to what they foresee as future needs. Considerable discussion was generated in this session from conference participants.

The speakers represented diverse perspectives, from the publishing industry, federal agency Washington and field offices, private sector campground owner, state recreation planner, and recreation educator.

CURTIS FULLER, board chairman of Woodall's Publishing Company, discussed the data base compiled from their campground inspection and listing and from other sources. He foresees recreation vehicles becoming smaller in size related to energy needs. He suggests that smaller vehicles will mean less self-containment, with consequent demands for increased quality in campground washroom, shower and toilet facilities.

JAMES BOSSI brought us some of the campground and camping statistics used for planning purposes by the USDA Forest Service Washington office. He notes that numbers of public campsites have increased from 1973 to 1977 even though this aspect of recreation management has been deemphasized. He also indicates the various public agencies involved with providing recreation opportunities and the relative magnitude of their involvement.

With the above indications of the relative magnitude of the campground management job, JERRY EUBANKS presented insights to changes in policy and what it means for one large park. He points out that the National Park Service realized in the mid-1960's that they could not provide everything for everyone. Established use capacities were more closely regulated. New campgrounds would not be built except in rare cases. More coordination with private sector development began. He then details specifics of the Great Smoky Mountain National Park (GSMNP) situation from 1968 to 1978. He sees the evolvement and need for more regional planning in the future, and the extension of backcountry camping reservation systems to frontcountry campground camping in GSMNP.

WALDO BOYCE presented the counterpoint view of a privately owned campground operator. He reflected directly on the impact of lack of coordinated regional campground planning, causing many private sector campground operators to be driven out of

business. He commends Tennessee Valley Authority planners for working with the private sector in his part of the country.

ALAN EVERSON records some impressions from his experience as a state recreation planner. He believes that even gradual increases in camping will increase camper numbers by millions by the year 2000. And changes are taking place in camping that make it a "different activity as time passes." He suggests ways to be sensitive to camping changes, and the need for more intensive campground management in the future.

To deal with the needs indicated, DOUGLAS MCEWEN examines the state of professional education for outdoor recreation managers and finds it usually lacks in-depth training. This appears especially true regarding campground management training. He speculates on why this is so and what is needed to improve the situation. He sees a need to develop a more systematic effort around three components: improved classroom offerings, field work for "practical experience," and review by practitioners.

To summarize the session on future needs, speakers visualized continuing changes in camping styles, more sophistication and need for intensive management, more regional planning to coordinate developments by public sector and private sector, and need for more structured research information and training programs.

SUMMARY OF WOODALL'S CAMPGROUND RESEARCH DATA, TRENDS, AND FUTURE PROJECTIONS

Curtis G. Fuller[1/]

I want to give you a brief overview of a source of campground statistics with which many of you may be unfamiliar. The Woodall Publishing Company through its directory division uses 30 to 40 husband-wife teams to inspect and rate 9,000 to 11,000 privately-owned campgrounds each year. We also inspect some public campgrounds and gather mail data on 4,500 to 6,000 each year.

We have published these data annually since the 1967 inspection year. We feel that this information is by all odds the most complete and accurate source of information in the country. Occasionally we receive criticism on the grounds that the published data is limited to campgrounds listed in Woodall's campground directories. I regard this as a quibble as far as U.S. private campgrounds are concerned. No other institution makes annual inspections of as many campgrounds as we do. We train our inspectors in week-long seminars and in the field. We are highly critical of their efforts. Although we recognize they are not perfect, the data they provide is far and away the best available. It would be simply impossible to duplicate our data on private campgrounds by mail surveys.

I am making available here summary annual public and private data for 11 years, ended in the 1977 inspection year. You will find anomalies in the tallies that represent changes in our own company policies. I want to explain that as far as we are able, we list every U.S. private campground that is fit to stay in. We do not list those with fewer than 10 spaces, however. We do not list those with filthy washrooms or dirty and littered campsites and grounds. Each year we delete 500 to 1,000 campgrounds and at present there are not enough new campgrounds coming on stream to replace these deletions. The primary reasons for deleting are going out of business, dirt and litter. The primary criticisms of campgrounds that we receive are just that simple--dirty washrooms and dirty unkempt grounds. There is obviously a doctor's thesis in the evaluation of our data alone. We have records of deletes going back many years. We have statistical data. We have the raw inspection sheets. We have a hundred man-years of raw data in our files.

1/ Board Chairman, Woodall Publishing Company, Highland Park, Illinois.

For 1977 and 1978 data we can obtain computer printouts of much of this information. Prior to that, we hand-tallied summary information state by state and for many Canadian provinces and Mexico. We also hand-tallied the delete statistical data by states.

In 1968 we did a study of base rates in 3,614 campgrounds in most states. At that time 1,911--or more than half--were charging $2.00 or less as a daily fee, 1,159 were charging either $2.25 or $2.50; 439 were charging either $2.75 or $3.00 and only 105 campgrounds--less than 3 percent of our sample, were charging over $3.00. Our most recent survey, covering calendar 1977, shows that the mean base rate charged by this nation's private campgrounds is still only $4.50 per night.

Trend Analysis

As you analyze some of the accompanying summary statistics which I have brought with me, you will first observe that in the past 11 years there has been a decline in the number of private campgrounds. Part of this decline is due to a tightening of our own requirements in defining a decent campground. There are many difficult questions here. There's enough difficulty even in defining what a campground is. Is it a lovely spot along a lake or river with only a pump for water and outhouses for relief? We say it certainly can be. Is it 10 vacant spaces in a mobile home park? We say yes, if these 10 spaces are reserved for transients. Is it an RV park parking lot? Is it a lots-for-sale condominium resort? Is it a park filled with season leases? There are a lot of questions, you see, and the answers aren't always easy.

Nonetheless, there appears to be a decline in number of private campgrounds. One reason, as I said, is our own tighter inspection requirements. Equally or more important is the number of campgrounds going out of business and the main reasons for that, we believe, are low camping fees or campgrounds which are too small to be economically viable.

At the same time there has been a steady increase in the number of campsites. Last year we found 8,164 private campgrounds with 716,722 campsites--an average of 87.8 campsites per campground. In 1967 we found 9,591 campgrounds with 267,424 campsites--an average of 27.9 campsites per campground. So it is obvious that campgrounds are declining in number but increasing in size. They are also increasing in number and proportion of electrical, water and sewer hookups. In 1967 26 percent of private campsites had sewer hookups. Last year 47 percent had such hookups and the number had nearly tripled. But those data are available on accompanying sheets.

I am on rather shaky ground when I come to analyze comparable data on public campgrounds. As with private campgrounds we are listing fewer public campgrounds than we were 10 years ago but we have admittedly not made as concentrated an effort to obtain this information. Nevertheless, we can say positively that the public campgrounds we do list are larger than they were 11 years ago--5,711 campgrounds averaging about 31 campsites each in 1967 and 4,668 campgrounds averaging 67 campsites in 1977.

There has not, of course, been the corresponding development of electrical, water and sewer hookups among public campgrounds. Changes since 1968 (we do not have this data for 1967) look like this:

Listed by Woodall's

	1968	1977
Public Campgrounds	5,711	4,668
Public Campsites	177,000	311,214
Electrical Hookups	32,004	40,528
Water Hookups	10,257	22,755
Sewer Hookups	4,607	10,651

These figures clearly show that public campgrounds have staked out for themselves quite a different role than have the private campgrounds. And, we believe, quite properly so.

I have brought with me summaries of five studies which you may find interesting.

1. U.S. comparative totals of private and public campgrounds by year.

2. A comparative table of the leading camping states in 1977 compared with 1969.

3. A market fact sheet prepared for Campground Management Magazine which contains a description of the market as we are able to encompass it.

4. A computer count of all facilities we were able to find in U.S. campgrounds in 1977.

5. Summary of U.S. and Canadian campground base rates by state and province.

These summaries represent base rates actually charged in 1977 by 7,344 U.S. campgrounds and 960 Canadian campgrounds. I am sure you understand, however, that bases vary tremendously and we have not attempted to define these but have allowed the

campgrounds to do so. They vary from a base rate for two persons with all hookups extra and extra charges for each additional person, to all-inclusive family rates with no extra charges. It has not been practicable for us to break these down.

In addition, I would like to summarize some of the information we have prepared so far in 1978.

Primarily for our magazine Woodall's RV Travel we have employed Viewpoint, Inc., a privately-owned research firm to do two market studies for us. In each study the questions asked about demographics remained much the same. Both studies also covered regional travel patterns.

Study No. 1 was mailed only to subscribers to Woodall's RV Travel Magazine and a major emphasis was on vehicles and accessories presently owned and current buying plans.

Study No. 2 was also a competitive marketing survey and was mailed to KOA campers, members of NCHA, and to Woodall's RV Travel subscribers. Its major emphasis was on what RV campers spend, where they camp and where they prefer to camp. It also asked respondents to evaluate their camping experiences and provided data on mileage covered, number of days camped, numberof weekends camped and number of trips taken.

In 1973 we did random sample studies of RV registrants and compared them with our own subscriber demos. At that time there was not a substantial difference.

Future Projections

I notice that I am also supposed to offer some ideas of what the future may hold. All kinds of unexpected things may happen to upset predictions but I believe some things are self-evident.

First, regardless of what may happen to petroleum supplies and prices, automobiles are going to continue to become smaller and so are trailers and motor homes.

Trucks and vans may continue to supply heavy duty chassis and tow units for a time but I can't see that continuing indefinitely despite the political clout of farmers and their pickup trucks.

For the past two years, RV production has been flat, although there are indications that it may have an upturn in 1979. Even if it continued flat, however, that means that there are half a million additional RV units out there each year--and that many additional camping families. As far as we are able to tell, there isn't much scrapping of RVs going on. They don't rust out and they are fairly easy to keep in repair.

But with RVs getting smaller, maybe we can look for changes in campgrounds. Elimination of self-containment, on the European model, would allow much lighter vehicles. That, in turn, would reduce the need for full hookups in campgrounds. It would also, I think, call for increased quality in campground washroom, shower and toilet facilities. By the same token, it might make public campgrounds with good washroom facilities much more attractive to the people who seldom or never camp in public campgrounds.

As for the future of the private campground industry, bitter economic necessity will force it to raise its rates to achieve profits. We must regard the private campground industry as still in its infancy, still unsophisticated, still relatively unprofitable. Up to this point, nearly enough eager campground owners have come up to replace the ones who are dropping out--nearly enough but still not sufficient to fill all the gaps. This simply must take place but it will need higher fees by the public sector to help accomplish it for the private campgrounds because of the price edge that publics have.

PUBLIC SECTOR CAMPGROUND STATISTICS

James E. Bossi[1/]

In 1974 Congress passed the Forest and Range Land Renewable Resources Planning Act. Often referred to as RPA, this act calls for a periodic assessment of the forest and range renewable resources including outdoor recreation. We will be submitting a recommended program for the Forest Service to the 96th session of Congress.

To assist in making the recreation portion of our assessment, we have contracted with the University of Vermont to furnish a National Market analysis of developed camping and related activities. The report was prepared by Malcolm Bevins and Daniel Wilcox and has been extremely helpful to us in preparing the recreation assessment. The statistics I will be quoting today are taken from this analysis.

No one can confidently say how many developed campsites exist in the public or private sectors of the Nation's camping industry. There are, however, several sources of information from which rough but useful estimates can be made.

-Woodall's campground directory is published annually and lists those campgrounds that have a minimum of 10 recreation vehicle sites that provide drinking water and meet Woodall's standards for cleanliness.

Figure 1 on the following page shows developed campsites in thousands. Notice the gradual increase in public sector.

Another source of campground numbers is the Rand McNally campground guide. Table 1 shows the change in the number of public and private campgrounds in the U.S. between 1973 and 1977 as listed in the Rand McNally directory.

Tables 2, 3, and 4 show the distribution and National supply of campgrounds by Region and the percent change from 1973 to 1977.

A number of the public agencies also keep inventories of the number of campsites. Forest Service, National Park Service, and Corps of Engineers statistics are shown in Tables 5, 6, and 7.

1/ Recreation Management, USDA Forest Service, Washington, D.C.

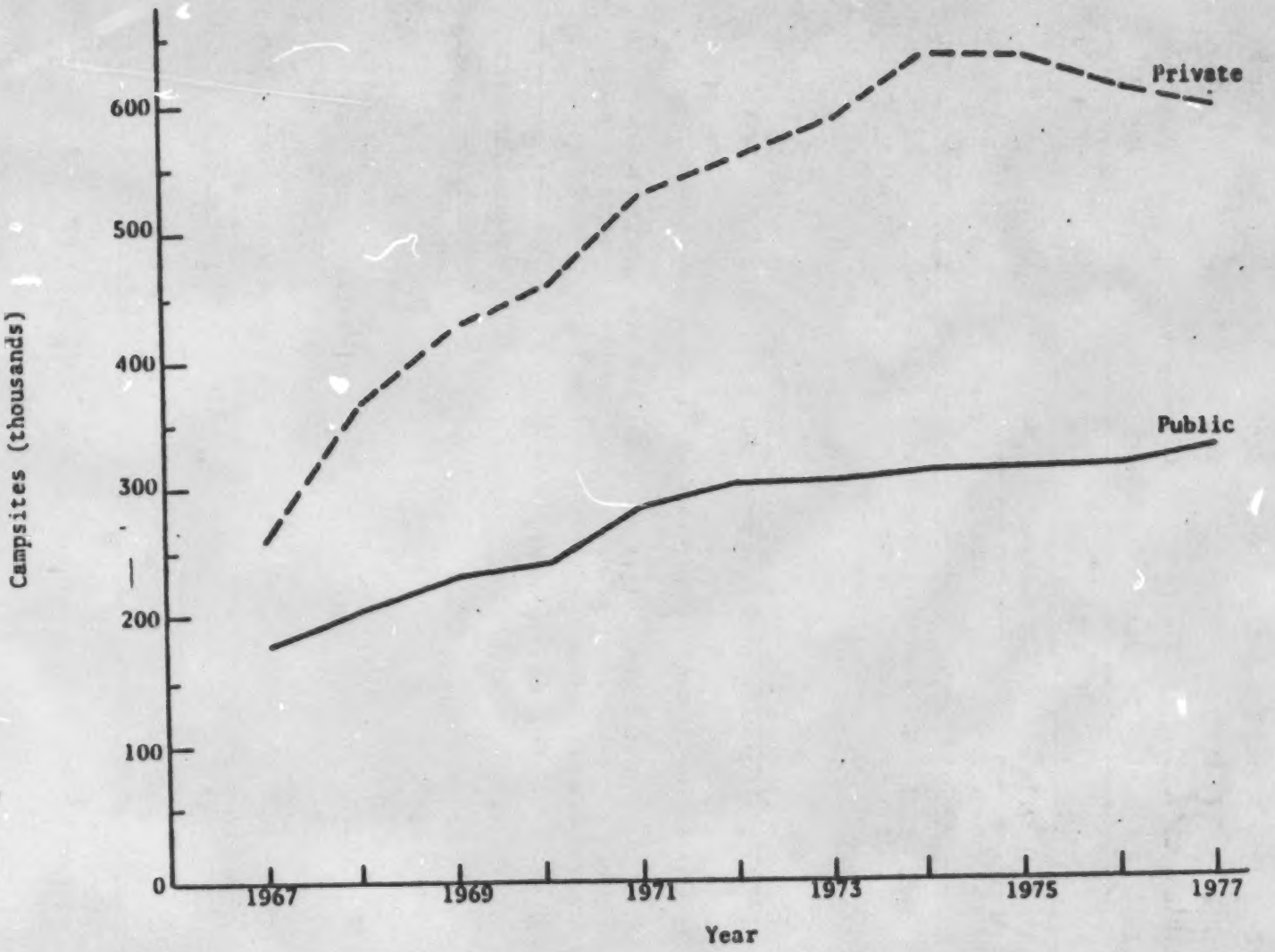

Figure 1. Public and Private Developed Campsites in the U.S., 1967-1977. Woodall's Campground Directory.
Source: Woodall Publishing Co. Woodall's Campground Directory. Highland Park, Illinois. Annual.

Table 1. Change in the Number of Public and Private Campgrounds in the U.S. Between 1973 and 1977, as Listed in Rand McNally Directory

Managing agency	Number of campgrounds 1973	Number of campgrounds 1977	Percent change
Publicly operated campgrounds	7,495	7,569	+ 1.0
U.S. Forest Service	3,260	3,223	- 1.1
Corps of Engineers	837	917	+ 9.6
National Park Service	333	345	+ 3.6
Other federal[a]	289	299	+ 5.1
State	2,015	1,999	- 0.8
Local[b]	761	786	+ 3.3
Private campgrounds	8,267	8,283	+ 0.2
Total campgrounds	15,762	15,852	+ 0.6

[a]Other federal campground managing agencies include the Bureau of Land Management, Bureau of Reclamation, Bureau of Sport Fisheries and Wildlife, Indian Reservations, and the Tennessee Valley Authority.

[b]Local campgrounds are those operated by counties, districts, and municipalities.

Source: Rand McNally & Co. Rand McNally Campground and Trailer Park Guide. Chicago, Illinois. 1973 and 1977 editions. Annual.

Table 2. Geographic Distribution of Campgrounds Listed in Woodall and Rand McNally Directories, 1973, 1977

	Woodall campgrounds				Rand McNally campgrounds			
	Public		Private		Public		Private	
Census region	1973	1977	1973	1977	1973	1977	1973	1977
Northeast	336	355	1,733	1,407	371	372	1,575	1,658
North Central	1,980	1,809	2,278	2,093	1,777	1,800	2,047	2,200
South	1,232	1,193	2,473	2,055	1,458	1,551	2,223	2,273
West	2,913	2,435	2,706	2,306	3,894	3,846	2,422	2,152
U.S. total	6,461	5,792	9,190	7,861	7,495	7,569	8,267	8,283

Sources: Woodall Publishing Co. Woodall's Campground Directory. Highland Park, Ill. 1973 and 1977 editions. Annual.
Rand McNally & Co. Rand McNally Campground & Trailer Park Guide. Chicago, Ill. 1973 and 1977 editions. Annual.

Table 3. The National Supply of Campgrounds by Region, Woodall and Rand McNally Directories, 1977

Census region	Woodall campgrounds		Rand McNally campgrounds	
	Public	Private	Public	Private
	Percent			
Northeast	6	18	5	20
North Central	31	27	24	27
South	21	26	20	27
West	42	29	51	26
U.S.	100	100	100	100

Sources: Woodall Publishing Co. Woodall's Campground Directory. Highland Park, Ill. 1977 edition. Annual.
Rand McNally & Co. Rand McNally Campground & Trailer Park Guide. Chicago, Ill. 1977 edition. Annual.

Table 4. Change in Geographic Distribution of Campgrounds Between 1973 and 1977 According to Woodall and Rand McNally Directories

Census region	Woodall campgrounds		Rand McNally campgrounds	
	Public	Private	Public	Private
	Percent			
Northeast	+ 5.7	- 18.8	+ 0.3	+ 5.3
North Central	- 8.6	- 8.1	+ 1.3	+ 7.5
South	- 3.2	- 16.9	+ 6.7	+ 2.2
West	- 16.4	- 14.8	- 1.2	- 11.1
U.S. total	- 10.4	- 14.5	+ 1.0	+ 0.2

Sources: Woodall Publishing Co. Woodall's Campground Directory. Highland Park, Ill. 1973 and 1977 editions. Annual
Rand McNally & Co. Rand McNally Campground & Trailer Park Guide. Chicago, Ill. 1973 and 1977 editions. Annual.

Table 5. Capacity of U.S. Forest Service Developed Camping Areas, 1972-1976

Year	Capacity (PAOT)[a]	Annual change
		- Percent -
1972	425,144	--
1973	424,424	- 0.2
1974	424,869	+ 0.1
1975	429,054	+ 1.0
1976	431,616	+ 0.6

Source: U.S. Forest Service. RIM statistics. Washington, D.C.

[a]The Forest Service measures capacity in terms of the number of persons who can be accommodated at one time (PAOT) at a particular area. Includes capacity of both family and group type developed campgrounds.

Table 6. Number of National Park Service Operated Campsites, 1967-1976[a]

Year	Number of areas reporting	Number of campsites	Annual change
			Percent
1967	90	28,526	+ 0.1
1968	88	28,426	- 0.4
1969	85	27,061	- 4.8
1970	87	27,648	+ 2.2
1971	86	27,700	+ 0.2
1972	88	27,568[b]	- 0.5
1973	90	29,489	+ 7.0
1974	89	29,241	- 0.8
1975	89	28,987	- 0.9
1976	92	29,676	+ 2.4

[a]According to the National Park Service, the number of campsites is not exact and should be used only as an estimate. The combined total for type A and B campsites is used in this table. Type A campsites are located in campgrounds and include parking, grills, and picnic tables. Type B campsites are located in areas other than campgrounds and are generally of a more rustic character.

[b]An additional 2,073 sites were unidentified as to type and may have been types A or B.

Source: National Park Service. "Public Use of the National Park System, CY Report 1975." and "Overnight Stays, 1976." Washington, D.C.

Table 7. Number of Recreation Areas Managed by the Corps of Engineers, 1974-1976

Type of area	Number of areas			Percent change 1974-1976
	1974	1975	1976	
Day areas	1,063	1,078	1,142	+ 7.4
Overnight areas	869	924	982	+ 13.0
Total	1,932	2,002	2,124	+ 9.9

Source: U.S. Army Corps of Engineers. "Recreation Statistics, 1974." "Preliminary RRMS Report Data, August 1976." and "RRMS Annual Report, 1976." Washington, D.C.

Finally, Table 8 (from a Bureau of Outdoor Recreation publication titled Federal Recreation Fees 1976 Including the Annual Federal Recreation Area Visitation Data) shows that the Forest Service, Corps of Engineers, and National Park Service are the largest providers of public recreation opportunities.

TABLE 8
1976 TOTAL VISITATION TO FEDERAL RECREATION MANAGEMENT UNITS (in Thousands)

AGENCY	FEE MANAGEMENT UNITS		NON-FEE MANAGEMENT UNITS		FEE & NON-FEE MANAGEMENT UNITS	
	VISITOR HOURS AGENCY TOTAL	RECREATION DAYS AGENCY TOTAL	VISITOR HOURS AGENCY TOTAL	RECREATION DAYS AGENCY TOTAL	TOTAL VISITOR HOURS	TOTAL RECREATION DAYS
BUREAU OF LAND MANAGEMENT	155,015.4	12,916.1[1]	312,433.9	26,299.1[1]	467,449.3	39,217.2
BUREAU OF RECLAMATION	2,178.9	726.3	377,856.6	61,689.5	380,035.5	62,415.8
CORPS OF ENGINEERS	220,476.1[2]	18,372.8	1,641,938.9[2]	373,167.9	1,862,415.0	391,540.7
FISH AND WILDLIFE SERVICE	76.2	6.5	71,490.7	5,965.7	71,566.9	5,972.2
FOREST SERVICE	299,014.8	35,329.1	2,100,122.4	786,757.5	2,399,137.2	822,086.6
NATIONAL PARK SERVICE	1,452,689.1	205,906.5	112,395.2	50,183.1[3]	1,565,084.3[4]	256,089.6
TENNESSEE VALLEY AUTHORITY	3,807.3	333.4	61,437.6	15,678.2	65,244.9	16,011.6
GRAND TOTAL	2,133,257.8	273,592.7	4,677,675.3	1,319,741.0	6,810,933.1	1,593,333.7

[1] The Bureau of Outdoor Recreation computed the data on Recreation Days for the Bureau of Land Management, by using the average factor from the two States which supplied Recreation Days to that agency.

(For Fee Management Units the factor used was 12.0 hours.)
(For Non-Fee Management Units the factor used was 11.88 hours.)

[2] The Corps of Engineers applied the following factors for Visitor Hours.

(For Fee Management Units the factor used was 12.0 hours.)
(For Non-Fee Management Units the factor used was 4.4 hours.)

[3] In the National Park Service, Recreation Days are determined by taking the figure for each park having only day use facilities as being equal to total visits. In parks with overnight facilities, total visits were added to overnight stays to obtain Recreation Days.

[4] In the National Park Service's report, "Public Use of the National Park System - Calendar Year 1976," the Total Visitor Hours reported were 1,176.0 million. This variation from the Total Visitor Hours in the Federal Recreation Visitation Report for Fee and Non-Fee Areas results from the fact that many NPS fee units charge both entrance and user fees which are reflected in each visitation category. When the category totals are combined in an attempt to show total visitation to all fee units, double counting of visitation results.

REFLECTIONS ON FUTURE NEEDS: THOUGHTS FROM A LARGE AREA ADMINISTRATOR

Jerry A. Eubanks[1/]

In order for me to reflect on future needs, it is first necessary to look at the past and the present.

Ross Tocher gave us quite a bit of historical information in his presentation Sunday night, but I want to briefly zero in on NPS philosophy in modern times.

It wasn't too many years ago that National Park Service areas with campgrounds did not turn anyone away if it was possible in any way to prevent it. People were permitted to do such things as camp in picnic areas, "overflow" camping areas were common, and the tendency was to continue to construct more sites and try and accommodate everyone who came in with every kind of vehicle imaginable. There were no fees for camping and very little attention was being given to maintaining campground integrity.

In the mid-sixties things began to change. We (the National Park Service) started to realize that invaluable natural resources were being unnecessarily sacrificed and irretrievably lost to make way to meet the ever increasing demands for camping sites and the related facilities required for their operation. In other words, we were incrementally destroying the very values the parks were established to protect, while at the same time failing to provide the quality of camping experience the visitors expect and deserve. It was realized that the National Park Service could not continue in this direction.

We then started giving closer attention to campgrounds, and sections of campgrounds in areas that had previously been overused were closed on cyclic bases to give heavily impacted areas chances to recover. Established capacities for campgrounds were adhered to. Policy was changed to require personal approval by the Director of the National Park Service to construct a campground beyond a certain size.

A short time later, all overflow camping was prohibited and this regulation was strictly enforced. Following the passage of the Land and Water Conservation Fund Act we begin to collect fees

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1/ Assistant Superintendent, Great Smoky Mountains National Park, Gatlinburg, Tennessee.

for the use of campsites that met the established criteria, with the revenues going toward conservation and recreational efforts by agencies of Federal, State and local governments.

Fees have gradually been adjusted upward to relate more closely with those being charged outside the parks and beginning in 1973, parks were allocated some of the revenues to help offset the costs of collecting them. In 1974, a nation-wide reservation system was tried which turned out to be a failure and has not been tried since.

Present policy calls for continued operation of campgrounds, with consideration being given to site reduction, etc., if deemed necessary to improve the quality of the park experience and protection resources. New formal campgrounds for tents and recreational vehicles may be provided only when necessary to achieve each park's purpose, consistent with the protection of park resources, and only when the private sector or other public agencies cannot adequately provide for them in the park vicinity. The Service will not attempt to provide the full range of technological amenities and utility hookups associated with some private campgrounds.

Within this national policy framework, I would like to share with you what has transpired in the Great Smoky Mountains National Park and nearby areas, over the ten year period beginning in 1968. This Park is by far the most visited national park in the system. Both tent and recreational vehicle camping is less now than it was ten years ago, even though total visits to the Park has increased substantially. Backcountry camping steadily increased until 1977, when a slight dip occurred. During this period, park camping opportunities remained essentially constant. We have approximately 1,000 formal family-type frontcountry campsites; and 103 backcountry sites capable of accommodating between seven and 20 people each with a capacity of 1,160. Overall, the Park can handle slightly over 5,000 campers at a given time. A fee of $4 per day* is charged for frontcountry sites and no reservation system is in effect. There are no utility hookups nor showers in any of the campgrounds. Backcountry camping is free and reservations can be made up to 30 days in advance. A seven day limit is imposed for formal camping during the heavy use season, and three days is the limit per backcountry campsite with a maximum of 14 days overnight in the backcountry per trip. The latter applies year-round. Saturation is not a major influence on the camping data as there are relatively few times when everything is full. (However, it should be pointed out that the more popular Park campgrounds do

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*This fee is reduced by one-half for those having Golden Age Passports.

stay full most of the time during the travel season.) We should also keep in mind that these figures do not go back to the mid-sixties when the general practice was not to turn anyone away. There is no way of knowing what the numbers were prior to that, but it is certain that they were substantially higher.

Generally speaking then, frontcountry camping is declining, backcountry increasing and total travel to the park is increasing. It makes one wonder what is happening outside the park in nearby areas.

Prior to the mid-sixties, private developed campgrounds adjacent to the Great Smoky Mountains National Park were practically non-existent. Today, private enterprise provides four to five times more sites than we do, and informal contacts with the local Chambers of Commerce reveal that visits to these areas have consistently increased and this trend is continuing. The fee range is about $4.50 to $7.50 per night for two people. Almost all of the privately owned campgrounds have complete hookups, hot showers, laundries, swimming pools, playgrounds and reservation systems.

As to meeting future needs, I think what has happened in the Smokies area where overall demands are increasing may be a healthy example of what can be done in others. While Great Smoky Mountains National Park may be the initial attraction to the general area, we realize that we cannot fulfill the purpose for which the park was established and still provide all things for all people. But, as a part of a regional mosaic of outdoor recreational opportunities, we can serve an important role. It's probably already happening in many places, but public land management policies should recognize that many outdoor recreational needs such as some types of camping can, and in many cases should, be met by private enterprise. There should be little or no competition between the public and private sectors where either can meet the particular needs equally. By working together we can provide options for the visiting public that would not otherwise be attainable. More importantly, dwindling unspoiled resources can be relieved of pressure for development.

At Great Smoky Mountains National Park, our role in this cooperative effort will be to continue to only provide camping opportunities that cannot be provided outside. No new formal campgrounds, nor expansion of existing ones, are planned. We will continue to strive to provide for a quality experience in the park setting for our frontcountry campers and heavy emphasis will continue to be given to resource protection in the management of backcountry camping. In regards to the latter, additional changes will be made as more knowledge is gained from continuing research and monitoring efforts.

We will need to expand our advance reservation system to include frontcountry camping and, through cooperative efforts with others serving similar public needs, come up with some centralized method to provide accurate and current information to visitors prior to, or immediately upon their arrival, in the Smokies region.

There will probably be a need to increase fees for camping in the Park (we now charge the maximum allowed by law) in order to stay in line with fees being charged by others. We will continue to give emphasis to making provisions for use by the handicapped and elderly visitors.

The future needs in the Great Smokies region can and will be met through the cooperative efforts of all involved in the camping industry. These include Federal, State and local units of government, and private enterprise.

THOUGHTS FROM THE PRIVATE SECTOR

Waldo Boyce[1/]

During the 1960's, several business publications indicated a growing need for recreation facilities and recreation related products. Recreation Vehicle (RV) Parks and Campgrounds were specifically mentioned as "very good investment possibilities." It was during this time that we decided to enter into the RV Park-Campground business.

We purchased property in 1968 and began construction in 1972.

The one ingredient that was missing from our determining factors was also missing from business publications, and that was the extent to which government agencies intended to get involved in additional construction and operation of RV Parks and Campgrounds. Yes, and in several instances, other more elaborate lodging facilities.

The long and short of it was that the private sector, all over the nation, was hit with terribly demoralizing and unconcerned action by insensitive government agencies. Department heads and many elected politicians pushed hard for the development of more RV Parks and Campgrounds on public lands. Seldom, if ever, did these people investigate the availability of commercial facilities in the area.

Campgrounds and RV Parks have been built in Tennessee State Parks primarily to provide contractors with work for their political support.

There is still a lot of irresponsible leadership encouraging the development of RV Parks and Campground at the taxpayer's expense. These Campgrounds and RV Parks amount to direct subsidy for the vacationing RV owner; a subsidy nor enjoyed by the average vacationing tourist.

Many private sector RV Parks and Campgrounds are operating in a depressed state. Many have been driven out of business by excessive government competition. Bankers recognized the potential for these RV Parks and loaned depositors money, but at the same time, the nation's biggest land owner (government) began

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1/ Campground Owner and Operator, Spring City, Tennessee.

installing more "free and low fee" RV Parks and Campgrounds. The hopes and dreams of many campground owners were dashed against the stones of bankruptcy and another small business joined the ranks of statistics--reasons given (poor planning, poor location, insufficient capital, inexperienced management, etc.).

What is government responsibility to Camping and the Recreational Vehicle Industry?

Heritage Conservation and Recreation Service's "Outdoor Recreation Grants-in-Aid Manual" lists some criteria that should have been used years ago.

For many, these guidelines came too late. For the rest of us, I hope it's not going to be "too little too late."

The National Campground Owners Association (NCOA) and State Associations are going to be watching very closely to see that these guidelines are followed. We will work together with agencies of government and assist in making accurate information available for the required narratives.

Agencies that are not required to follow the guidelines of the Heritage Conservation and Recreation Service I sincerely hope will embrace these guidelines as fundamental policies for their agencies.

In the name of NCOA, I urge a turning back of past trends by most governmental agencies to keep up with changing demands and requirements of camping tourism.

Analyze the source of pressures that are being applied. Is there a genuine need, or is some group just trying to get something for nothing (nobody ever does), but very often they do manage to spread the cost of their pleasure to the rest of the nation's taxpayers?

I believe that our National Parks, Forests, State and local Parks must be preserved for all people and not keyed to accommodate any particular, special interest group, such as Campers, Golfers, Snowmobilers, etc.

Now, I want to express my appreciation to Tennessee Valley Authority (TVA) Recreational Resources Branch and especially to Mr. S. David Freeman, for recognition of the plight that many private sector campgrounds are in, as a result of TVA's excessive construction of campgrounds within the TVA region. TVA is working hard to relieve the competition it has brought onto the private sector, we are encouraged.

THOUGHTS FROM A STATE RECREATION PLANNER

Alan R. Everson[1/]

It's been said more than once during the conference--camping is not growing "super rapidly." Some kinds of recreation are--like tennis, and perhaps jogging. But, even with slow growth, as we heard last night, camping will increase by millions of campers by 2000. And, if camping is not growing it is changing and changes are making camping a vastly different activity as time passes.

Someone yesterday said the camping public is fickle. Maybe it's campground providers that are fickle. Do we keep up with changes in camping and thus serve the camping public's current needs. How long did it take campground planners to adjust to new size and shape tents, to pickup campers, to the self-contained units. Have we done it yet?

We especially need to watch the changes in campground equipment. Wilbur LaPage said that the campground market has "matured." He says we should expect high level "product advertising" and marketing in the camping field. Judging from all the equipment that people camp with now, I think we are already seeing the power of marketing. Be sensitive to changes in equipment, because I believe these changes signal changes in the activity that may require changes in management.

Perhaps in all the expensive tents and trailers and lights and stoves and clothes and sleeping bags and vehicles, we see signals that spending and owning are becoming a relatively more important part of camping. This seems so to me.

It is likely that camping equipment will become more plentiful rather than less. Advertising will expand camping product markets if possible. How many campground agencies and firms council with equipment manufactures? Most of us, alas, just react to new equipment--or don't even react.

With all this equipment, I sense that future campers will be more and more insulated from their environment. Heat when it's cold, light when it's dark, sleep out of the dirt in any case, and spray all the bugs. These campers must relate to their environment differently than their umbrella tent predecessors. They are more and more insulated, and we should expect their behavior and their needs to change.

1/ Formerly Recreation Planner, State of Colorado, now Associate Professor, School of Forestry, Fisheries and Wildlife, University of Missouri-Columbia.

I sense changes in the fact that more and more kids grow up in cities now rather than rural environments. They watch dozens of hours of TV a week rather than play in an outdoor environment, as might have been the case a decade or two ago. People who grow up this way will have different desires as regards camping experiences than their parents. To repeat my first point--camping will change.

Secondly, we need to be sensitive to the user's experience. Researchers talk about quality (or just satisfaction) but this knowledge needs to be applied to fuller potential--giving better camping experiences in 1980. And, if the researcher and the user are sensitive to quality (and they seem to be), managers providing camping often are not. They often "count" campers and do not seem to understand the public especially well. We must become more sensitive to the camping experience, and respond as changes occur.

We have mentioned hunters and fishermen who say they're not camping, even though they're in a campsite. The obvious existence of multiple activity experiences is critical. Too many of us think one activity at a time--the citizen, including the camper doesn't. Maybe you've got to have a certain 2 or 3 activities at once to serve some families' needs.

For a "back home" illustration, most persons including recreation planners don't realize that 1/2 of all outdoor recreation (all kinds, including camping) in Colorado takes place east of the mountains, along Interstate 25. The two biggest tourist attractions are the Denver mint and the Air Force Academy. Neither of these is managed for outdoor recreation. The most popular outdoor recreation is visiting friends! We are not sensitive enough to the user's outdoor recreation experience.

Thirdly, I think there is really a need for higher intensity campground management. I sense that campers want good interpretive activities (which requires more personnel), more and better quality developments, and more on-site services. Think about the LBL facilities we saw on the field trip.

Will management respond to this need? It seems not to be--why? If the public would like more (and some research reported here has said campers do, and would even pay), then why do most agencies seem to do no more, and even cut back on management intensity--even close campgrounds, such as the Forest Service has done in the West. If camping is growing we must offer more, just to meet the growth. To offer increased services--higher intensity management--we will have to increase campground management, which recent budget requests have just not done.

Last, looking at statewide overviews of camping needs, there are yet other needs that will remain in 1980. Wilbur LaPage

mentioned the lack of urban camping. I definitely agree with his observation. But, there are other lacks which occur between cities, and among agency programs. Each agency "does what he does" and no one pays much attention to the overall pattern. I used to feel I could locate 20 commercial campgrounds in Colorado from what I knew as a SCORP planner. These holes in the campground picture are nobody's "business" at the present. Here is opportunity, and a need for coordination. Often these are good opportunities for private enterprise.

So, to summarize, we've talked about change. We can and must all be sensitive to the changes taking place in camping. Second, we need to be and can be more sensitive to the quality of the camper's experience in 1980. Third, there is a need for higher intensity management. And last, there are many opportunities to be met in the overall campground picture.

THOUGHTS FROM AN EDUCATOR

Douglas McEwen[1/]

Do We Need to Educate for Campground Management?

The question might be asked, "Do we need to educate for campground management?" A likely response would be yes, a professional background in recreation resource management is necessary. But, when asked if a specific course or concentration of courses is needed is campground management, the anwer becomes unclear. A quick survey of 22 forestry schools accredited by the Society of American Foresters revealed only three schools that offered courses dealing directly with campground management and three others that offered courses on general site management. The remaining schools offered one to several courses on general recreation resource management, wilderness management, recreation behavior, or recreation economics. The manager of a campground in a public agency most likely will have a professional education in some traditional aspect of natural resource management with one to three additional courses that survey recreation resource inventory and planning. Very little attention is specifically focused on campgrounds except for occasional field trips, parts of general recreation courses, or an elective course in general landscape architecture and site design. Campground managers who do not have a professional education usually begin their careers as maintenance specialists.

So the question now turns to why there are so few courses in campground design and management. Again the answer is unclear. For many natural resource managers, campground management has been regarded as a practical art. Going further, one might risk saying that campground management is regarded as a chore, an unchallenging but necessary administrative obligation of operating outdoor managers adhere to the stockade philosophy of guiding these recreationists into the campgrounds in order to prevent them from trampling the surrounding natural resources. Many of the tasks associated with campground management such as trash removal, toilet cleansing, and law enforcement are unpleasant and almost antithetical to the interests and values of natural resource professionals. While foresters in timber management might take great pride in saying they learned their profession from the ground up, campground managers need to learn their profession from the garbage up, a rather unappealing start.

1/ Assistant Professor, Department of Recreation, Southern Illinois University-Carbondale.

Perhaps it is the garbage that has prevented campground management from receiving the status and educational attention focused on wildlife, timber, soil, and other natural resources.

In any case, we need to ask ourselves if the present educational process is adequate to meet the current situation. There are strong indications that the newest generation of campground managers are repeating the mistakes of twenty years ago (Richard Cottrell - personal communication). A number of newly constructed campgrounds stand almost empty on July 4th, Labor Day, and other peak occupancy times because of faulty design. Loops and sites are being constructed in sterile patterns of engineering neatness with little thought to sun, shade, vegetation aesthetics, or social grouping patterns. Programming, if any, in most campgrounds focuses on nature and ignores the socialization function that motivates many people to camp. Potential conflicts of noise versus quiet, going to bed early versus going to bed late, lights versus darkness, recreational vehicles versus tents, and children versus non-family groups are aggravated by funneling all groups into the same common area. These problems demonstrate a need to transmit past experiences in campground management to new generations of managers. This is a role for both the educator and the practitioner; a more formal training on campground design and management.

Role of the Educator

The first step in transmitting past experiences to present managers is to gather this information in a comprehensible format; i.e., a research of campground literature. This is a task more appropriately assumed by the university system, but to date no satisfactory compilation of such literature has been published. James (1974) and Cordell (1976) published separate papers that begin to describe literature on campground impact and general management concerns. Several bibliographies on carrying capacity Butler (1972), Stanley and Lime (1973), are helpful starting points. However, a more complete and up-to-date survey of all campground related literature is needed; a difficult task because much valuable information remains in the form of unpublished administrative reports. Once this information is assembled, it must be classified in a comprehensible manner (Cordell 1975) that focuses on typical managerial problems. Unfortunately, campground research has proceeded in a piecemeal fashion, and few, if any studies are replicated from one site to the next making result comparison very difficult or impossible. Finally, all the research administration reports, and "common knowledge" need to be condensed into a set of principles or rules for good management.

Assembling past experiences is the first responsibility of any education, but communicating this information requires the help of practitioners. The education process can be conveniently

divided into three components. First is the formal classroom-laboratory setting which will be called the "campus campout." Here background information, basic thinking skills, and theoretical concepts are presented. There is license to be abstract and free thinking in this setting. As a complement to the "campus campout," the "practical experience" component provides balance with exposure to field situations. Here, conceptual skills are adapted and applied toward solving real problems. The third component, "alumni support," functions as a pool of expertise for classroom presentations and job placement assistance. All three components are essential for a successful education. Both educators and practitioners share responsibility in providing this education. The remainder of this paper will suggest the role of both professions in each of the three components.

The Campus Campout

Everyone is familiar with the three "R's" of basic education: reading, writing, and arithmetic. In campground education, we might instead think of the three "I's": information, integration, and investigation.

One of the first duties of any good educator is to provide the student with background information on campgrounds. This information comes in five broad topics.

A. Recreation System. It is not uncommon for a new student to ask, "Why doesn't the U.S. Forest Service permit feeding of bears in Yellowstone?" or to be surprised that the Corps of Engineers is one of the largest providers of campsites. There is much confusion identifying the different agencies, public and private, that manage campgrounds, and it is important to first provide a basic vocabulary of the outdoor recreation system. Statistics on the types and number of campsites, fees, budgetary commitments, and visitation rates along with the philosophy of each agency give an initial overview. The expanding facilities of private campgrounds make them an important part of the national campground system.

B. Spectrum of Visitor Needs. "Everybody loves nature" used to be the norm when Mom, Dad and the kids went camping for some wholesome recreation. Today the norm has expanded to include the explosion of diverse groups that have discovered fun in camping. People who love to study nature and enjoy exploring natural environments still come camping, but now along with them are two other major groups: the socializers and the sportsmen. Socializers tend to view campgrounds as mini city parks. They come to play games, talk, eat, drink, and have general amusement including

watching TV. While they enjoy the change to a natural setting, they have little interest in studying nature. The sportsperson comes for skill challenges in the out-of-doors. This type of person uses the campground more as a place to eat and sleep while participating in hunting, hiking, sailing, rock climbing, or other popular sports. Students need to be sensitized to this whole spectrum of recreation interests so that they might appreciate the importance of meeting all their needs, not just those of nature appreciation (Driver 1976).

C. Recreation Impacts. Development and use of campgrounds causes unavoidable changes in soil and vegetation. It is important to discuss the severity and patterns of recreation impacts in order to protect the outdoor environment that is so attractive to the campers. Design strategies which can channel impact into predictable patterns need to be presented as alternatives to heavy handed control measures such as excessive signs or police patrols (McEwen and Tocher 1976).

D. Literature. One of the largest challenges to educators is to introduce students to campground literature. This literature is scattered throughout a wide diversity of publications and many of the practical subjects do not make exciting reading (Cordell 1976). Campground management is a practical art. Most campground managers are of a practical nature and probably not that interested in reading the literature. However, there is great value in developing regular reading habits because the literature is a tremendous source of ideas. Even reading articles that are judged to have poor ideas have value because they encourage the reader to formulate a more explicit alternative position. Ideally, every student should leave the classroom with a positive attitude toward reading campground literature.

E. Current Issues. The last major area of information presented in the classroom attempts to project future trends in campgrounds. Statistics on campground attendance, the sales of recreation vehicles, and the sales of camping equipment give some hints. The issue of ORV's and the "bicycle invasion" need to be discussed. Another current trend is diversified campground programming, expanding beyond nature interpretation into sports, games, dances and crafts. Field conversations with campground managers and the news media are two excellent means of keeping abreast of current issues.

Providing background information to the student is not enough. Administrative decisions require compiling facts as they relate to a problem. Enhancing the development of this integrative skill, the second of the three "I's" is an important responsibility of classroom educators. Such a skill cannot be taught directly. However, all good educators encourage integrative thinking through decision making models and logical organization of course material. One well known integrative model is the carrying capacity concept (Wagar 1964, 1974; Bury 1976). This concept has fallen into disfavor in recent years because it is generally agreed that determination of unique recreation carrying capacities is impossible. However, the concept still remains a very useful integrative model because it exposes the three major types of information needed in any administrative decision: resource carrying capacity, visitor preferences and administrative resources. By stressing the wisdom of reviewing available information from each of the three categories before making decisions, the student is encouraged towards integrative thinking. The carrying capacity model can also be used as the general organization structure for a course.

Conditions are ever changing in campgrounds as is the "state of the art" in administrative techniques. A good administrator needs to keep in contact with such change and this can be a difficult task when information is received through staff contact, encounters with outspoken campers, and sporadic on site observations. Information received through these channels is very helpful, but many times it represents an incomplete, biased view of the real situation. Collecting information in a systematic manner helps avoid biased impressions. Educating students in investigation techniques is the last of the three "I's" in the "campus campout."

Systematic investigation is based on the principles of scientific research but does not attempt the elegant methodological techniques and data analysis associated with such research. Many administrators either need practical information that does not attract scientific research or cannot wait the long periods before such information becomes available. Thus, they turn to "administrative studies" to answer their questions. Simple user surveys and site observations are extremely useful when conducted with good sample design, uniform data collection, and data compilation that permits comparisons from year to year. Teaching these basic rules of systematic investigation is the responsibility of the educator through lectures and class projects. Adherence to systematic information collection will greatly enhance the wisdom of many campground managers who today rely on impressions.

Practical Experience

During their four years at college, students need to periodically migrate out of the classroom and gain some first hand fieldwork experience. Such fieldwork provides an emotional experience that adds balance to academic learning. For example, students might memorize some principles of good site design, but working in a campground and observing the effects of good or bad design will reinforce principles and make the students eager to learn more because they now appreciate the importance of good site design. This feeling or appreciation is an emotional experience that comes by working in and observing campground settings.

The fieldwork model is common in many long established professions such as law, medicine and teaching. Recreation departments, normally associated with colleges of education or health and physical education, have strong fieldwork-practicum programs. Such programs are not to be confused with forestry field camps, which are usually classroom experiences conducted in the field. Practicums or fieldwork indicate the student is working for an agency or private concern in some real capacity and a successful experience depends in great part on the commitment of the cooperating campground managers.

Within the practicum-fieldwork programs, there is an important role and obligation for agencies and private concerns to share in the educational process of future campground managers. The university provides paraprofessional students willing to volunteer or work at minimal wages. The agency or private concern must in turn provide attractive fieldwork settings. First and foremost, this means exposing students to a variety of job situations and committing managerial time to help in their training. Cooperative managers develop professional relationships with the students and "tutor" them in a most effective manner. Uncooperative managers normally view fieldwork students as a source of cheap labor, a philosophy students readily identify and resent. Other features of attractive fieldwork settings include provision of low cost housing, food, and job related transportation.

The fieldwork-practicum setting provides an excellent opportunity to screen outstanding students for future employment. The job market in outdoor recreation and campground management is limited and extremely competitive. Here is an opportunity for the campground manager to do a service to the good students and the whole profession by assisting in job placement. Many agencies or private concerns hire outstanding fieldwork students. If this is impossible, referral to other

professional colleagues and letters of recommendation are essential. Many times the universities have limited contacts in job placements and good students have been lost from the profession simply because they could not find employment within a reasonable time after graduation.

Alumni Relations

Some critics would say that students begin their real education after graduation. Educators debate such statements but everyone agrees on one point: that good managers never stop learning. What they learned becomes of tremendous value to both the former student and educating institution. Alumni support means much more than buying athletic tickets or donating to a building fund. Alumni can actively participate in the classroom by returning as guest speakers. Students are always eager to hear someone from the "real working world." Alumni can provide opportunities for field trips and practical experiences. But most important, they can help keep educators informed of the latest trends in campground issues and management strategies.

For their part, educators have responsibility to cultivate good alumni relationships. Individual correspondence or an annual newsletter are excellent means of contact. The latter is especially attractive to alumni if it contains some comments on departmental affairs and a column of alumni news. Many times an alumnus will contact a former classmate or other alumni through the newsletter and the relationships developed from these contacts can be mutually supportive in a professional manner as stories and opinions of the latest activities are exchanged. A good educator will develop a list of the alumni campground managers and will informally put them in contact with each other to help promote professional exchanges of views. Being a third party in such exchanges can be equally beneficial to the educator and consequently to the students.

Conclusion

Education is ultimately an individual responsibility and educators are only facilitators of this process. Professional campground managers, educators, and alumni all have a part in providing a climate for learning. Working cooperatively, practitioners and educators will develop successful managers of the future.

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SESSION IV

CURRENT RESEARCH

When planning the CAMPGROUNDS AND CAMPING 1980 Conference, we issued a call for research papers for presentation at evening sessions. We wondered (1) if anyone was doing research on campgrounds and camping, and (2) if so, what kinds.

We were gratified by the number and variety of responses. Papers were contributed by researchers from several universities (Purdue, Penn State, Massachusetts, Tennessee, Southern Illinois University-Carbondale) in addition to the U.S. Forest Service research papers presented in earlier sessions by Magill and LaPage.

The research papers here are arbitrarily arranged from concerns for state recreation planning (O'Leary and McDonald, O'Leary and Dottavio, Strauss) to concerns for area planning at Blue Ridge Parkway (Hamitt) to individual campground and site (Stevens and Allen, Knudson, Budelsky).

LONGITUDINAL CHANGES IN CAMPING SUPPLY: THE INDIANA CASE

Joseph T. O'Leary and Cary F. McDonald, Purdue University, Department of Forestry & Natural Resources, W. Lafayette, IN 47907

In the northeastern United States, Lapage and his colleagues have monitored camping market and other recreation supply changes for several years. Unfortunately, we believe that other areas of the country have not received as rigorous a review, perhaps because the data has not been readily available.

The State of Indiana has collected data about campgrounds since 1969 in three major studies that have been used in the preparation of their State Comprehensive Outdoor Recreation Plan. Camping is a popular activity within the state, and the average number of times people report they do the activity has increased 60% since the 1972 statewide user survey. Because of this we chose to examine how the supply of facilities has changed in response to (or in spite of) this increase in involvement. This paper examines changes in facilities, acres and sites during a seven year period, 1969 to 1976.

PROCEDURE

The 1976 Indiana Outdoor Recreation Facilities Inventory was directed at obtaining complete information about the universe of outdoor recreation facilities in the state of Indiana. Building from surveys done in 1969 and 1973, a revised survey form was distributed to the private and public sectors in spring, 1976. Names of private sites were available from the 1973 survey data base and the 1974 National Association of Conservation Districts' (NACD) Nationwide Outdoor Recreation Inventory. In addition, telephone books, recreation club membership and mailing lists, campground and trailer guides, outdoor sport operators' association lists, and the National Campground Directors

Association membership lists were used to search for names and addresses. County based Cooperative Extension Agents were asked to review the lists and indicate any places that had been missed or which had disappeared.

In the public sector, state, federal, county, municipal and metropolitan agencies were asked to indicate where changes had occurred in terms of addition or deletion of facilities or activity places.

For purposes of this analysis, the number of campgrounds reported in Indiana for 1969, 1973 and 1976 are compared by type of control. A campground is identified if either acres or sites are reported for the facility. The analysis reported here examines changes taking place since 1969 in terms of facility numbers, acres and sites (designated and undesignated).

RESULTS

Table 1 shows the number of camping facilities in Indiana by control type and how these have changed since 1969. In base year 1969, facilities were distributed across a number of categories, but 56% of the 511 facilities found then were private profit places. Federal and state areas are next in importance with 16% of the facilities.

From 1969 to 1973, some sharp changes occurred with 27% more campgrounds being added in Indiana. The sharpest change was in the largest sector - private profit. A much smaller number of places were also added in the "County-township-municipal" group and in the private non-profit sector, but on a percentage basis they are significant, 30% and 21% respectively. During the 1973-1976 period, the private profit sector continues to show a substantial change with 26% more facilities being added. The private, non-profit group was also growing by 18%, but it meant adding only six places.

The facility data shows an important market change. In 1969, private profit places were 56% of the total; by 1976 they represented 66% of all campgrounds. The Federal-state share dropped five percent during the same period from 16% to 11%.

Table 2 displays the number of acres for designated and undesignated camping areas by control type. The private-profit

Table 1. Number of Camping Facilities in Indiana by Type of Control, 1969-1976.

CONTROL	YEAR					TOTAL
	1976 (# Added)	% Change	1973 (# Added)	% Change	1969 #	
Federal-State	3	4%	4	5%	80	87
County-Twp.-Municipal	2	5%	10	30%	33	45
Schools	0	0%	0	0%	3	3
Private-Profit	106	26%	116	41%	285	507
Private-Nonprofit	6	18%	6	21%	28	40
Other	6	7%	4	5%	82	92
TOTAL	123	19%	140	27%	511	774

Table 2. Camping Acres for Designated and Undesignated Areas by Type of Control, 1969-1976.

CONTROL		YEAR 1976 Des.	1976 Undes.	1973 Des.	1973 Undes.	1969 Des.	1969 Undes.	TOTAL Des.	TOTAL Undes.
Fed.-State	Acres	23.0	10.0	203.0	20.0	2215.0	689.0	2441.0	719.0
	#	2	1	3	1	69	26	74	28
	Mean	11.5	10.0	67.7	20.0	32.1	26.5	33.0	25.7
Co.-Twp.-Munc.	Acres	6.0	20.0	146.0	140.0	724.0	1175.0	876.0	1335.0
	#	1	1	6	2	30	10	37	13
	Mean	6.0	20.0	24.3	70.0	24.1	117.5	23.7	102.7
Schools	Acres	0	0	0	0	40.0	0	40.0	0
	#	0	0	0	0	3	0	3	0
	Mean	0	0	0	0	13.3	0	13.3	0
Private-Profit	Acres	1427.0	298.0	2748.0	950.0	3894.0	1450.0	8069.0	2698.0
	#	92	15	106	40	265	68	463	123
	Mean	15.5	19.9	25.9	23.8	14.7	21.3	17.4	21.9
Private-Nonprofit	Acres	572.0	45.0	1148.0	5.0	861.0	252.0	2581.0	302.0
	#	3	3	3	1	24	9	30	13
	Mean	190.7	15.0	382.7	5.0	35.9	28.0	86.0	23.2
Other	Acres	40.0	104.0	182.0	575.0	653.0	395.0	875.0	1074.0
	#	3	2	4	2	68	17	75	21
	Mean	13.3	52.0	45.5	287.5	9.6	23.2	11.7	51.1
TOTAL	Acres	2068.0	477.0	4427.0	1690.0	8387.0	3961.0	14882.0	6128.0
	#	101	22	122	46	459	130	682*	198**
	Mean	20.5	21.7	36.3	36.7	18.3	30.5	21.8	30.9

*Total 682: Actual number of camping areas reporting designated acreage.

**Total 198: Actual number of camping areas reporting undesignated acreage.

sector again has the largest number of acres in 1969 for both designated and undesignated areas with 76% more acres than the Federal-state sector, often intuitively thought of as being the largest. During the period 1969-1976, the private sector exhibited sharp additions in acreage. In seven years, this group of facilities was more than 200% larger. A more prolific change is evident in the private nonprofit sector, growing more than 300% during the same period. But more interesting is that the average size of these places has more than doubled from 35 acres to 86 acres.

As could be expected, the private sector again shows the greatest increase in camping sites (Table 3), growing 59% in the "for profit" area and 84% in the nonprofit group from 1969 to 1976. The data also show that the average number of sites per facility is decreasing for the total of all places, and for two of the most important control categories - Federal-State and private profit.

This presentation has been a brief review of campground facility change in Indiana since 1969. Certainly, substantial increases are apparent, especially in the private sector. But one of the dilemmas that will have to be dealt with in the use of campgrounds relates this information about change to the way in which users report they go camping. While Indiana has 66% of its facilities in the private sector, Indiana residents report they go to Federal and state areas more than 60% of the time. Private sector use represents about 28% of the total involvement. Some effort appears necessary to move visitation around to more adequately reflect distribution of use coincident with distribution of facilities and resources.

Table 3. Camping Sites for Designated and Undesignated Areas by Type of Control, 1969-1976.

CONTROL		YEAR 1976 Des.	1976 Undes.	1973 Des.	1973 Undes.	1969 Des.	1969 Undes.	TOTAL Des.	TOTAL Undes.
Fed.-State	Sites	189.0	30.0	304.0	100.0	8206.0	1870.0	8699.0	2000.0
	#	2	1	3	1	68	24	73	26
	Mean	94.5	30.0	101.3	100.0	120.7	77.9	119.2	76.9
Co.-Twp.-Munc.	Sites	42.0	20.0	690.0	46.0	1723.0	1352.0	2455.0	1418.0
	#	1	1	8	2	30	9	39	12
	Mean	42.0	20.0	86.3	23.0	57.4	150.2	62.9	118.2
Schools	Sites	0	0	0	0	103.0	0	103.0	0
	#	0	0	0	0	3	0	3	0
	Mean	0	0	0	0	34.3	0	34.3	0
Private-Profit	Sites	5343.0	1145.0	8683.0	3784.0	23697.0	7923.0	37723.0	12852.0
	#	96	21	108	38	270	55	474	114
	Mean	55.6	54.5	80.4	99.6	87.8	144.1	79.6	112.7
Private-Nonprofit	Sites	540.0	70.0	825.0	125.0	1637.0	131.0	3002.0	326.0
	#	3	3	3	2	22	5	28	10
	Mean	180.0	23.3	275.0	62.5	74.4	26.2	107.2	32.6
Other	Sites	50.0	65.0	162.0	100.0	3146.0	614.0	3358.0	779.0
	#	3	3	4	1	70	15	77	19
	Mean	16.7	21.7	40.5	100.0	44.9	40.9	43.6	41.0
TOTAL	Sites	6164.0	1330.0	10664.0	4155.0	38512.0	11890.0	55340.0	17375.0
	#	105	29	126	44	463	108	694*	181**
	Mean	58.7	45.9	84.6	94.4	83.2	110.1	79.7	96.0

*Total: Actual number of camping areas reporting designated sites.

**Total: Actual number of camping areas reporting undesignated sites.

A COMPARISON OF CURRENT AND POTENTIAL CAMPERS IN INDIANA

Joseph T. O'Leary and F. Dominic Dottavio, Purdue University, Department of Forestry & Natural Resources, W. Lafayette, IN 47907

The 1976 Indiana Outdoor Recreation Participation Survey showed that 27% of the respondents had participated in some type of camping activity during the previous year. What made the camping data interesting was that when compared to 1972 statewide survey information, average camping frequency had increased more than 60% and the projections for the number of activity occasions to occur in the future showed continued increases. While this information may please those who are involved in managing and administering campgrounds, three questions might be asked of the other 63% of the population that do not currently report they camp:

1. "What are the outdoor activities you would like to try or do more often but for some reason have not been able to?"

2. "Where does camping fit into those responses?"

3. "What reasons have kept you from trying to camp or do the other activities?"

From a planning point of view, knowing what types of activities people are thinking about doing could suggest direction for future trends. If we know the reasons for not doing an activity, management might be able to intervene to remove potential barriers. Finally, by knowing something about who these people are then marketing strategies could be developed that address these groups more directly and move them into the camping population, helping to identify this as a viable activity for them.

Since the questions above can be answered from the 1976 Indiana Outdoor Recreation Survey, we would like to present the "potential" activities respondents identified, the reasons they are not involved, and describe who these people are. Additional information is provided for other activities besides camping to allow for comparisons.

PROCEDURE

Data were obtained from a survey of 5913 Indiana residents during fall, 1976. Respondents were asked to complete an eight-page questionnaire describing their recreation involvement during the preceding year within Indiana and then for all other states outside Indiana. They were also asked to identify outdoor activities the respondent would like to do but for some reason could not. For each activity identified they were asked to indicate the most important reason why they had not done it. A list of five reasons plus a category called "other" in which they could write in a reason that did not already appear was provided to assist the coding of results.

For purposes of this paper all persons who reported that they would like to try camping were compared with people who already camped to determine if differences existed between the two groups. Sex, age, race, education, occupation, occupational prestige, income, number of recreational activities done in the previous year, marital status, size of household and number of children were variables used in the comparison.

RESULTS

The activities respondents noted they would like to try and the reasons for not having participated are given in Table 1. Three types of camping that were identified are listed first, and then all other activities follow.

When the 28 activities are examined, it is clear that there are many things people identify as potential opportunities they would like to try. In terms of camping, primitive camping was ranked third, recreational vehicle camping sixteenth, and auto camping was in twentieth place.

Table 1 . Reasons why people did not participate in activities where involvement was desired, 1976 Indiana Outdoor Recreation Participation Survey.

ACTIVITY	REASONS						
	Facilities Not Available	Do Not Have time	Cost is Too High	Children Are Too Young	Instruction Not Available	Other	Total n
Auto Camping	18.3%	51.4%	17.6%	7.0%	1.4%	4.2%	142
RV Camping	10.9	36.1	39.1	3.4	1.3	9.2	238
Primitive Camping	25.5	42.8	10.8	9.2	.3	11.5	381
Bicycling	46.2	29.3	4.1	10.7	0	9.7	290
Golf	11.7	50.1	31.2	2.0	1.4	3.4	349
Hiking & Nat. Walking	35.0	46.2	3.0	8.3	.3	7.3	303
Horseback Riding	53.8	14.6	21.1	4.6	1.6	4.3	370
Upland Hunting	35.8	41.8	5.4	1.2	2.1	13.7	335
Deer Hunting	31.0	40.7	10.6	1.8	2.7	13.3	113
Wetland Hunting	50.9	26.3	5.3	0	0	17.5	57
Motorized Rec. Vehicle Driving	42.4	9.4	41.2	2.4	1.2	3.5	85
Picnicking	19.7	55.6	6.8	0	2.6	15.4	117
Playground Activities	74.1	7.4	7.4	3.7	0	7.4	27
Outdoor Games & Sports	51.2	30.6	6.0	1.2	2.4	8.7	252
Tennis	32.3	41.1	4.0	4.4	8.9	9.3	504
Canoeing & Kayaking	31.5	36.1	14.1	9.5	2.5	6.2	241
Power Boating	20.9	19.9	47.2	3.4	.3	8.3	326
Sailing	29.4	16.6	31.6	4.3	11.2	7.0	187
Other Boating	36.7	18.3	23.3	5.0	0	16.7	60
Fishing	24.2	53.6	5.6	2.3	.5	13.7	731
Swimming at a Pool	50.7	19.7	5.9	5.9	5.9	11.8	152
Swimming at a Beach	42.3	26.8	7.6	6.2	1.7	15.5	291
Waterskiing	28.5	20.1	26.1	5.6	7.7	12.0	284
Ice Skating	65.8	15.3	3.5	2.0	5.0	8.4	202
Sledding & Tobogganing	74.6	9.0	3.7	6.0	1.5	5.2	134
Snowmobiling	51.3	4.6	38.3	.8	1.7	3.3	240
Snow Skiing Cross Country	63.4	11.5	14.5	3.1	3.1	4.6	131
Snow Skiing Downhill	72.0	6.6	13.2	2.5	3.8	1.9	318
Other	45.1	17.7	24.0	1.2	5.1	6.8	412

The modal category (the most common one reported) of reasons for not participating is underlined in the table. For the 28 activities the three most common reasons for not participating were: "facilities not available", "do not have time", and "cost is too high." In the three styles of camping reported-- auto, recreation vehicle, and primitive -- auto and primitive have primarily not been done because time is seen as a constraint. Recreation vehicle camping for most people is seen as being too expensive, probably in the context of equipment they view as being needed. However, time is a close second as a constraint for not doing this activity. Interestingly enough, the absence of facilities is not seen as a serious constraint for any of the camping styles.

Table 2 describes the characteristics of respondents that currently camp and compares them to potential campers, both in terms of the aggregate for all who reported interest in camping and then for each individual type. What is surprising about this table is how similar current and potential campers are. Participation is distributed across all education, occupation and marital status groups. When current participants are compared to the potential group, the distributions are virtually identical. If there is a subtle difference it is in the sex characteristic. There are apparently a large number of women who express interest in camping.

These data raise an interesting question-- if the current and potential campers are so similar in terms of social characteristics why does the potential group identify time and cost as being the biggest constraints? Perhaps those who would like to try the activity still don't know enough about it to recognize that it is within their reach to try. The constraint, while real in their mind, may in fact be artificial. More aggressive marketing and information strategies by both the public and private sector aimed at the potential groups may in fact push them "over the edge" in deciding to try camping on for size. In addition, it is not unreasonable that these strategies consider the apparent interest expressed by women in the activity.

One final comment should be made here to provide a basis for expanding and comparing this analysis. The recent national recreation survey conducted by Heritage Conservation and Recreation Services (HCRS) asked virtually an exact duplicate of our question. It would be interesting to analyze that information and compare it to our data to see if similar patterns emerge, both at the national level and then between regions.

Table 2 . Characteristics of current and potential campers, 1976 Indiana Outdoor Recreation Survey.

Characteristics	Current Campers Aggregate	POTENTIAL CAMPERS			
		Aggregate	Primitive	Recreation Vehicle	Auto
Sex (% Males)	57.0	49.2	48.3	52.5	47.0
Age (Mean)	39.9	38.3	36.3	42.2	36.9
Race (% Whites)	98.2	97.2	96.9	96.2	99.3
Education					
Less than 12 yrs.	14.8	13.5	16.4	10.4	9.2
Completed H.S.	40.9	41.1	40.5	44.2	37.3
Some College/Tech. Sch.	27.2	26.6	24.3	28.8	27.5
4 yrs. College	7.6	7.1	6.8	7.5	9.9
Grad. Work	9.5	11.6	12.0	9.2	16.2
Occupation					
Prof./Managers/Adm.	23.1	25.3	24.4	28.1	25.7
Sales/Clerical	9.7	10.7	10.6	9.1	14.6
Blue/Collar	42.2	38.7	42.2	34.3	34.7
Farmers/Farm Managers	3.0	3.6	4.1	3.3	2.8
Housewives/Students Retired, Other	22.0	21.6	18.7	25.2	22.2
Occupational Prestige	40.7	41.9	41.6	42.8	41.8
Income (Mean)	11,926.00	11,724.00	11,438.00	11,896.00	12,240.00
Number of Rec. Activities (Mean)	7.8	7.1	7.1	7.1	7.0
Life Style					
Marital Status					
Single (%)	10.3	9.1	10.9	6.6	9.2
Married (%)	82.2	86.2	83.9	89.6	85.8
Divorced/Widowed/Separated (%)	7.6	4.7	5.2	3.7	5.0
Size of Household	3.6	3.8	3.7	3.9	3.6
Number of Children	1.4	1.6	1.6	1.5	1.6

THE FINANCIAL REQUIREMENTS OF OPERATING PUBLIC CAMPGROUNDS-- A REVIEW OF THE PENNSYLVANIA BUREAU OF STATE PARKS FINANCIAL MANAGEMENT STUDY

Charles H. Strauss
Assistant Professor of Forest Economics
School of Forest Resources
The Pennsylvania State University

Within Pennsylvania, the Bureau of State Parks has recognized certain limitations in evaluating economic characteristics of their park system. To remedy this situation, a cooperative research project was established in 1973 with Penn State's School of Forest Resources.

Two basic objectives are involved in this effort. From an applied viewpoint, the project provides the Bureau with a management information system pertaining to park usage and expenditures. The data system permits an intercomparison of operations among 110 park units organized within four management regions. On a statewide basis, the system also provides for an evaluation of financial performance within 18 types of recreation activities.

The second objective relates to Penn State's research interests. This program is attempting to identify the supply characteristics of the total recreation system--what does it cost to produce these services, what factors cause variations in these costs, and how can the services be provided more efficiently? Aside from our interests in economic theory, this effort also complements long-term planning.

The Data System

The design of the study considers the Bureau's system as a recreation production effort, with the emphasis on the service, or output. The basic management unit, the state park, is subdivided into the production of as many as 18 types of recreation activities. Various physical measurements, such as the number of campsites, are used to define the production base. The resulting output is measured in activity days of service (one person's usage of a specific activity during some portion of a given day).

Each state park area submits monthly summaries of operational data to Penn State for computer processing. Three sets of information are included for each activity: (1) the current inventory of facilities; (2) the monthly log of attendance; and (3) the monies spent in the operation, maintenance, and development of the park unit.

Five types of operating costs are identified: (1) salaries, (2) wages, (3) wages supported by federal funds, (4) contract expenses, and (5) small equipment purchases. Each cost item is prorated among the recreational activities on the basis of where it is used within the park. Two additional categories are available for recording expenditures not tied to specific recreation activities--general management and leave time. These indirect costs are subsequently prorated among the activities on the basis of the percentage of direct costs reported in each activity. Monies required for the support of capital development projects or regional operations are reported separately and not included within activity costs.

After the reports are received at Penn State, they are keypunched, entered in magnetic tape storage files, and computer processed to produce the Bureau's financial report. The individual state park reports are organized on the basis of recreation activities and printed in sets tied to the Bureau's management regions. Data summaries and statistical analyses are made at both regional and statewide levels. Reports are issued on a monthly, quarterly, and annual basis, with copies distributed to park, regional, and central offices. In this manner, the managers involved in the data gathering process have a firsthand opportunity to critique their own input.

Financial Characteristics of the Statewide System

The 1977-78 fiscal year provides a typical summary of the Bureau's system. During this period, the Bureau spent $19.2 million within 110 park units that, in turn, provided 27.1 million activity days of recreation service (excluding 15.6 million activity days in pleasure driving). At the park level, 70% of the expenditures were incurred for the activity areas, 18% for general management, 8% for leave time, 2% for development, and 2% for miscellaneous expenditures.

As might be expected, the operation of state park activities is a labor intensive effort. Salaried positions accounted for 56% of the parks' operating and maintenance costs; wage positions, 18%; wage positions funded with federal monies, 6%; contract costs, 19%; and small equipment purchases, 1%.

In terms of financial support, the major activities within the Bureau's system are: the four types of camping requiring 25.8% of the budget; picnicking, 20.5%; beach and pool swimming, 16.9%; and the combination of boating and fishing, 14.2%. Each of the remaining activities required less than 6% of the budget. Pleasure driving was excluded from this analysis since it often identifies with the support function of transiting recreationists to other activity areas. However, maintenance of the Bureau's total road network during fiscal 1977-78 required 9.7% of the park budgets.

A different ordering of recreation activities is evident when reviewing the distribution of annual attendance. Picnicking leads all activities with 29.7% of the total activity days; followed by swimming, 23.0%; boating and fishing, 20.5%; hiking, 12.3%; and the four camping activities, 6.3%.

Camping Operations

Four types of camping are provided within Pennsylvania's state park system: tent and trailer camping, group tent camping, group camping, and cabins. Tent and trailer camping is the dominant program, representing 74% of the monies expended in camping and attracting 85% of the camping audience. This activity is provided in 52 parks, with the average campground having 130 sites. Approximately 70% of

the system is composed of "Class A" sites having modern washhouse facilities and a user fee of $4.00 per site. "Class B" sites lack these amenities and cost $3.00 per site.

Group tent camping is provided in 25 parks and is primarily intended for organized youth groups. The sites are primarily of "B" quality and cost $2.00 per night for the camping area plus an additional charge of $.10 per camper for groups exceeding 20 persons. The third system, group camping, is provided in modest lodge-type structures at only 5 parks. This program is primarily maintained for special-training and health-care youth groups.

Cabin rentals are limited to 11 parks and include 148 cabins, many of which were constructed during the 1930's and 40's. These facilities attract 6% of the total camping audience and require 13% of the park monies used for camping. The weekly rental rates are $10.00 per bed plus $5.00 per room, plus a flat fee of $10.00 if a modern washhouse is available.

Table 1 summarizes the more important features of these campground systems. Since the facility units are not standard across the four systems, some care must be used when cross-comparing performances. By using a calculated capacity of 4.5 persons per cabin and an assumed capacity of 5 persons per tent and trailer site, a more direct analysis can be made.

Table 1. Operating characteristics of camping activities, Pennsylvania Bureau of State Parks, Fiscal 1977-78.

Activity	Activity Day/ Facility	Cost[1]/ Facility	Cost[1]/Activity Day
Tent & trailer	204.9/site	375.53/site	1.83
Group tent	14.3/capacity unit	49.80/capacity unit	3.48
Group	45.4/capacity unit	143.81/capacity unit	3.16
Cabins	723.5/cabin	3091.56/cabin	4.27

[1]These are park operating costs in dollars and do not include central or regional administrative costs.

The time-worn cabins still prove to be the most heavily used system with a usage of 160.8 activity days per year per capacity unit. This is followed by group camping with 45.4 activity days per unit; tent and trailer, 41.0; and the least-used system, group tent, 14.3.

The maintenance of cabins and lodges is expensive. The annual cost per capacity unit for cabins is $687.01 and for group camping is $143.81. In contrast, the upkeep on tent and trailer sites averages $75.11 per capacity unit and group tent sites, $49.80 per capacity unit.

Even when the higher maintenance costs of cabins is prorated over a greater usage, the resulting "cost per activity day" is still the largest at $4.27 per activity day. The limited usage of group tent areas places their cost per activity day at $3.48, and for group lodges the cost is $3.16 per activity day. The least expensive system is tent and trailer camping with a cost of $1.83 per activity day.

Since each of the activities generates a certain volume of income through user fees, an estimate was made of the percentage of operating costs covered by these fees. (It should be noted that these receipts are returned to the General State Fund and are not considered as a portion of the Bureau's budget.) For tent and trailer camping, an estimated $.92 per activity day or 50% of the $1.83 cost is returned through fees. Cabin fees return $1.96 per activity day, representing 46% of their cost. Less than 10% of group tent camping's operating costs would be covered by fees.

In general, these financial patterns confirm why the Bureau has favored tent and trailer camping and not expanded other components of its camping system. Although cabins are popular and operate at the highest level of usage, their excessive operating cost (and capital cost) prohibit further additions. In group tent camping, the low rate of usage suggests the need for promoting further usage of these facilities or in opening these areas to individual campers.

In terms of the future, there is some question as to whether tent and trailer camping should be expanded. Even with 50% of its park-level cost "covered" by camping fees,

this activity is still outside the $.20-$.70 cost per activity day required for most other day-use activities. This form of camping already commands 19% of the total park budgets while only directly involving 5% of total park usage. However, before these questions of financial equity can be resolved, there is need for further information on (1) the complementary roles played between camping and other day-use activities, (2) the total cost of servicing recreationists using more than one activity, and (3) the potential for extracting an equitable payment from various types of users.

A Further Definition of the Production Function

As a means of investigating the cause-effect relationships associated with the production of recreation services, a series of multiple regression analyses have been made of the major activities--including tent and trailer camping. These studies serve to identify the factors having a significant impact upon production costs and to determine whether certain ranges of production are more cost efficient than others.

For tent and trailer camping, the basic model considers the total annual cost of operating these facilities to be a function of (1) facility size, (2) attendance, (3) financial prerogatives of the park manager, and (4) stratifications of "Class A" and "B" campgrounds. A cross-sectional sample of 53 "camping" parks was obtained for the fiscal study year 1976-77.

The initial results from these investigations have identified a significant multi-variable model (see Table 2). Attendance and facility size were highly significant and explained 93% of the variation in total annual direct costs found within this sample. This particular model indicates that each camping site contributes $114.45 to park expenditures in a linear fashion. Attendance is the second cost feature, with $.66 per activity day added to the base facility costs, again in a linear fashion. Although various curvilinear transformations of the dependent and independent variables were tested, none proved as significant as the linear model.

Table 2. Multiple regression analysis of tent and trailer camping, fiscal 1976-77.

Sample Size	Dependent Variable	Independent Variables	b	t	R^2 (%)	F Test
53	Total annual direct cost	Total annual attendance	0.662	4.94*	93	328*
		Facility size	114.450	3.62*		
		Intercept (a)	3328.400			

*Significant at the 95% probability level.

This particular model does not identify any particular size of campground or range of attendance to be more cost effective than others. Basically, it indicates for a given sized campground the best means of minimizing cost per activity day is to maximize attendance. This prediction should, however, only be extended to some logical maximum use level. Currently, the highest level of attendance at any major park is 350 to 375 activity days per camp site.

These types of investigations are being continued to expand upon these models and to secure further interpretations pertinent to the operation of this park system. Ultimately, we hope to provide the Bureau with an improved means of predicting future budgetary requirements and for allocating monies to individual parks.

In summary, this project is centered in an area that has received less attention in the past--the cost of supplying outdoor recreation by public agencies. Prior research concerns with demand and consumer value have overshadowed management's need for identifying the characteristics of supply. To date, this project has provided valuable input to this agency's financial decisions. Potentially, it may be applied to other recreation systems.

THE ECONOMICS OF CAMPGROUND CONGESTION: AN OVERVIEW

by
T. H. Stevens and P. Geoffrey Allen

Camping is becoming an increasingly popular activity and campground congestion can be expected to become a more serious problem. While substantial progress has been made toward developing the theory and methodologies to estimate the demand for and value of camping, these efforts have provided campground managers and owners with little information on either the management of congestion or the interrelationships between congestion and the economic value of camping.

The effects of congestion can appear in two ways. In the first, a recreational site has a technically determined upper capacity and increased visitation may result in queuing (as in downhill skiing) or entry refusal as in most public campgrounds. The density at capacity may, however, be such that a sense of crowding never occurs to most participants, even when the site is full. In the second type of congestion, which is examined in this paper, increased visitation results in a higher site density to the extent that each participant feels diminished enjoyment, and hence willingness to pay is reduced. Congestion of this type may reduce both the satisfaction derived from recreation by participating individuals and the net returns accruing to resource owners.

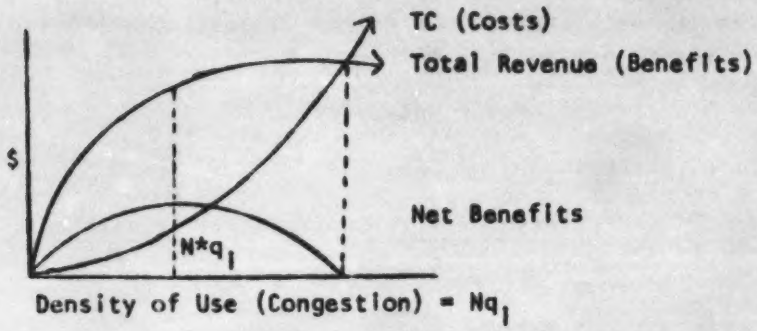
By way of example assume a hypothetical campsite with "unrestricted" capacity. Let N represent total users in a given time period. Congestion, C, may then be defined as a function of total visits:

$$(1)\quad C = \phi\,(Nq_1)$$

where q_1 represents the number of visits per user and ϕ is an unknown parameter. Incorporated into an individual's demand function this results in the aggregate site demand function being downward sloping which gives rise to the total revenue curve shown in Figure 1. That is, gross campground revenue (benefits or consumer surplus) increases at a decreasing rate and then actually decreases as the level of use increases. Costs which are defined to include physical damage due to overuse and the expense of short-term management programs to reduce congestion, are likely to increase with total use.

Congestion is therefore a special management problem faced

Figure 1: Relationship Between Revenue and Congestion



by both private and public campground owners. The practical management implication of this economic problem for existing campgrounds is rather obvious. Wetzel, for example, concludes that under conditions of congestion, an increase in entrance fees will not necessarily reduce the value of, or net revenue from, a recreational resource because the fee would also reduce congestion [9].

Congestion may also play an important role in the formulation of policies for the development of new campgrounds. Specifically, the traditional travel cost procedure for demand estimation may be inappropriate under congested conditions. First, as Smith points out, visits over the season are not homogeneous if congestion exists [8]. Consequently, the traditional travel cost demand estimation method which aggregates individual responses over the season may be biased. Second, McConnell and Duff argue that consumers may respond differently to a change in travel cost than they would to a change in the price of the resource. This conclusion is based on the premise that there is a probability that individuals may be excluded from a site because of congestion [5]. Third, the travel cost procedure assumes that there is no unobserved demand that is unsatisfied as a result of capacity restrictions or congestion.

For these reasons use projections derived from travel cost procedures may be misleading. This may be a serious problem since good decisions as to where and when to develop new recreational facilities depends in part upon accurate economic demand projections. In general, use of the natural environment requires a balancing of the net returns to each of its possible uses. The decision as to when and where to develop new recreational areas depends in part upon recreational values (preservation) relative to the value that could be derived from other uses (development). If recreational values are misspecified, due to

congestion, then the allocation of natural resources between preservation and development uses may be incorrect. A simple numerical example illustrates the nature of this problem. Suppose the i^{th} individual's demand function is specified as:

(2) $q_i = 5 - (\text{Travel cost} + \text{entry fee})$.

This is consistent with the following data:

Travel Zone	Season Visits/Capita	Travel Cost
1	4	$1
2	2	$3

The aggregate demand for the campground is then expressed by:

(3) $q = 6 - 2\,(\text{entry fee})$. For entry fee ≤ 2.

The value of the recreational resource if the entry fee is zero is then $10, and if the fee is raised to $1, total value falls to $9.

On the other hand, the observed data may also be explained by:

(4) $q = 8 - (\text{Travel cost} + \text{entry fee}) - .5\,(q_1 + q_2)$

which includes a congestion effect. The aggregate demand is then equal to:

(5) $q = 6 - (\text{entry fee})$. For entry fee ≤ 4.

The total value if the entry fee is $1 is then $12.25. Consequently, if congestion is ignored in the process of demand specification, the traditional travel cost procedure may severely underestimate the value of the recreational resource. Similar bias may result if congestion is ignored in "willingness to pay" procedures.

Clearly, then, there is a problem; yet very few empirical studies of recreation congestion have been published. A brief review of these is, however, useful for establishing research directions and priorities.

Deyak and Smith recently examined the effect of congestion upon the probability of participation and the quantity of participation for remote and developed camping. A cross-sectional data base was developed from the 1972 National Recreation Survey. Variations in the probability of and quantity of participation were related to variations

in leisure time, age, income, sex, per capita campsites in each state, and wilderness users per wilderness acre in each state. They found that the probability of participation was inversely related to the level of congestion (wilderness users per wilderness acre). However, a significant relationship was not found between the rate of participation and the level of congestion. They therefore concluded that, "congestion was most likely to affect the decision to participate and not the level of participation." [2]

Oliveira and Rausser assumed that the decision to camp and length of stay had been previously made. A principal components approach was employed to explain the variation in use between campgrounds and between camping dates. Pooled cross-section (between campgrounds) and time series data were used in the analysis. Independent variables included total use at all campgrounds in the current time period, total use lagged, temperature and campground attributes. They suggest that lagged total use could influence the household's expectation of campground congestion. From economic theory we would expect that a "congestion" variable would carry a negative coefficient, whereas a positive relationship between use lagged one period and the use in the current time period was found. This result may of course indicate a partial adjustment mechanism totally unrelated to congestion. Yet, the results also indicated a negative relationship between use lagged two periods and use in the current time period. The rudimentary state of current analysis is once again evident [6].

The models developed by Cicchetti and Smith and by McConnell were based upon a willingness to pay survey approach [1, 4]. Cicchetti and Smith found that the willingness to pay and consumer surplus of users of the Spanish peaks wilderness area were significantly related to disruptions in solitude where solitude was defined as a number of encounters with other parties [1, 8]. McConnell reached a similar conclusion with respect to users of Rhode Island beaches [4]. However, the sociological studies reported by Heberlein revealed that correlations between user's satisfaction and the density of use were not always statistically significant. This may be because people change their normative definition of congestion levels as a result of changes in the recreational experience itself. "This subtle product shift would again mean that aggregate satisfaction continues to climb as use increases." [3]

Several tentative directions for research may be drawn from this brief review. First, debate continues over the appropriate measure of congestion. Second, the full effect of the following factors remain unresolved in the literature: (1) the substitution of activities due to congestion, (2) site substitution due to congestion, (3) changes in

the time distribution of participation due to congestion, (4) simultaneous interactions between congestion and the level of aggregate demand, and (5) dynamic considerations. Moreover, in order to define an optimal management policy, income distributional impacts must be evaluated. For example, a fee to reduce congestion may ration out the poor. The design of a practical income neutral rationing policy remains, however, elusive.

Given these considerations, I would like to describe briefly some of our current research at the University of Massachusetts. The research objectives are (1) to explore alternative methods for and definitions of the measurement of congestion related to camping, (2) to evaluate and develop a willingness to pay procedure for estimating the impact of campground congestion, and (3) to compare the traditional travel cost and willingness to pay techniques for estimating demand under congested camping conditions.

A survey instrument was designed and responses obtained from campers in Western Massachusetts during the Summer of 1978. The preliminary results are outlined below.

First, a model specification of the type employed by McConnell, Cicchetti and Smith, and Deyak and Smith was used. That is, a function of the following specification was estimated.

$$(6)\quad \text{Ln}W_i = \alpha_0 + \alpha_1 \text{Ln}y_i + \alpha_2 \text{Ln}q_i + \alpha_3 \text{Ln}x_i + \varepsilon_i$$

where W_i is consumer surplus (willingness to pay above costs) for the i^{th} individual per day, y_i income, q_i congestion measured in terms of the perceived percentage the campground was full that day and x_i the length of stay for the i^{th} individual. The ordinary least squares estimate of equation (6) is presented in equation (7):

$$(7)\quad \text{Ln}W_i = 1.46 + \underset{(.005)}{.007}\ \text{Ln}y + \underset{(.021)}{.017}\ \text{Ln}q - \underset{(.025)}{.054}\ \text{Ln}X$$

$R^2 = .11$

$F = 3.078$ ( ) = standard errors

The results indicate that only eleven percent of the variation in willingness to pay was explained by this model. Moreover, the variable for congestion, percentage full, was of the wrong sign and statistically insignificant. Consequently alternative procedures for measuring and defintions of congestion were explored. First, congestion was defined in terms of individual feelings that day, F, (e.g., very secluded, somewhat secluded, somewhat crowded, very crowded). The preliminary

results are presented in equation (8).

$$(8)\quad \underset{(.005)}{\text{Ln}W_I = 1.45 + .007\,\text{Ln}y} + \underset{(.04)}{.03\,F} - \underset{(.03)}{.06\,\text{Ln}X}$$

$R^2 = .05$

$F = 1.18$

( ) = standard errors

The results indicate that congestion, as measured by individual feelings as opposed to a physical measure, was not a significant factor in explaining the willingness to pay for the recreational resource. In fact, the survey site was physically developed in such a way that no one in the sample felt "very crowded." Consequently, it was concluded that a sense of crowding seldom occurred even when the site was full. This was attributed to site spacing and the use of vegetation screens between sites.

In order to increase the range over which the congestion variable can take, a hypothetical bidding game was devised. As noted by Randall, economists have defined several possible biases which may result from such a technique: starting point bias, vehicle bias (method of payment), and information bias. However, "these kinds of biases are not endemic to bidding mechanisms. Rather, they may occur in particular applications in which the lack of context correspondence causes problems." [7, p. 13].

Consequently, the bidding game used was designed to stimulate a hypothetical market in which the camper could buy situations not currently provided, and for which a fee would normally be charged. In other words, particular attention was devoted to the design of a game with context correspondence.

Specifically, campers were asked their willingness to pay for the day for various site spacings. Responses were obtained for seven different spacings (or densities) including the current density. This was done by hypothetically removing and adding sites to the camping area.

The preliminary results are summarized in equation (9).

$$(9)\quad \underset{(.18)}{W_I = 5.37} + \underset{(.000008)}{.00003y} - \underset{(.002)}{.032q} + \underset{(.008)}{.009x}$$

$R^2 = .26$

$F = 64.913$

( ) = standard errors

where W_i is willingness to pay above costs per party per day, y income, q congestion measured in terms of total parties per day within the campground area (number of sites per unit area) and x the length of stay per party. All variables were found to be highly significant with the exception of the length of stay.

In order to find the optimum level of total parties per day within the campground, (number of sites per unit area), it was assumed that all individuals were alike with income and length of stay at the sample mean values. The aggregate willingness to pay per day can then be expressed as:

$$(10)\quad AWP = q\,(5.72 - .032q)$$

By taking the derivative of AWP with respect to q, the optimum level of total parties or number of sites per unit area was found to be approximately 89. Due to the low R^2 value this result should be regarded as indicative of the technique, and not as the basis for any policy recommendation. However, consider a hypothetical facility which is currently managed for less than this number of sites. Total consumer satisfaction might then be increased by increasing the density of use within the camping area. Conversely, it may be inferred that similar sites with a similar clientele, but which have a density in excess of 89 sites per area, might increase total user satisfaction by reducing the number of sites. For such areas, prices are likely to be too low, attendance too high, and economic demand projections based on the travel cost method may understate the true value of the recreational resource.

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PREFERENCE, LOCATION, AND SITE CHARACTERISTICS FOR PRIVATE AND PUBLIC CAMPGROUNDS ON AND ALONG THE BLUE RIDGE PARKWAY

William E. Hammitt
Assistant Professor of Forest Recreation
Department of Forestry, Wildlife, and Fisheries
University of Tennessee
Knoxville, Tennessee

THE SITUATION

Individual differences and preferences have been shown to be quite important in determining the type of campground resource and experience different styles of campers seek (Burch and Wenger 1967, LaPage 1968). Camping for many people is as much a social as an environmental experience. Where campers seek these different types of experiences, in turn, is often related to the accessibility of camping resources, the facilities-activities available, and the site characteristics that provide for certain experiences (Lime, 1971). As a consequence, when attempting to assess the supply of needed campground resources in an area, it is necessary to not only inventory the location and site characteristics of existing campgrounds, but to also determine the preferences of campers and how willing they would be to use additional resources that might be made available or known to them.

A situation presently exists on the Blue Ridge Parkway where there appears to be a need for additional campground facilities. During peak camping periods several of the Parkway campgrounds fill to capacity. One solution to the need for more campground resources is to make visitors aware of additional campgrounds near and adjacent to the Parkway. Making campers aware of private and various other types of camping resources adjacent to the Parkway may not only solve the need for development of additional campgrounds on the Parkway, but it might also provide different styles of campers with the type of camping experience they prefer.

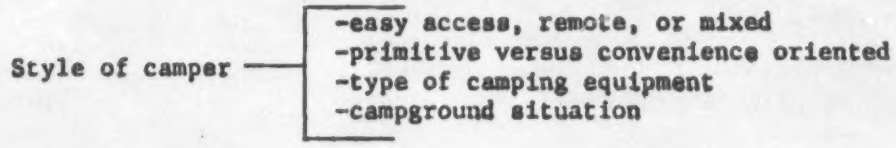
This paper reports on research to be conducted during 1979 which aims at providing campers to the Blue Ridge Parkway with information concerning adjacent campgrounds. The location and site characteristics of campgrounds on and along the Parkway will be inventoried and developed into a campground directory for distribution to Parkway

visitors. In addition, users of existing Parkway campgrounds will be surveyed to determine the likelihood that Parkway campers would be willing to use private and other agency campgrounds adjacent to the Parkway if they had prior knowledge of them. From the site and preference information generated by the study, it is anticipated that Parkway visitors can be categorized according to types of campers and major factors affecting campground selection and length of stay. Such information is of interest to National Park Service personnel for future planning purposes.

KNOWN FACTORS INFLUENCING CAMPGROUND SELECTION

Both the social aspects and the resource characteristics of desired campgrounds have been addressed by outdoor recreation researchers. Hendee and Campbell (1969) reviewed the broad social aspects of camping, giving particular attention to the highly developed campground and the camper it attracts. They point out that the majority of campers today go to highly developed campgrounds. In these highly developed areas, the incentives for camping and the preferred facilities-activities of campers are both varied and nontraditional. For example, Hendee (1967) found that about seven out of 10 campers preferring developed sites thought all campgrounds should have several units designed so two families could camp together. Thus, for many campers the camping resource and resulting experience desired are much less of an environmental than a social experience. At the same time, we have also observed at the other end of the camping spectrum an increase in primitive forms of camping.

More detailed studies stressing the social aspects of camping investigated the different "styles" of campers and the various roles they play in recreation. Burch and Wenger (1967), Shafer (1969), and LaPage and Regain (1974) all characterized various styles of campers by different factors or components. Components used to describe various styles of campers might best be summarized by the following sketch:



Socio-economic and family characteristics were found to be quite influential on style of camping and to cause fluctuations in camping style as family structure changed through time.

Other researchers have studied both the social and resource aspects of camping. In an early study, Green and Wadsworth (1966) examined camper participation and preference in Indiana. While this study is out-dated and rather broad in scope, it did point out the interesting fact that 95 percent of the surveyed campers who regularly took summer camping vacations planned the trip an average of 3.7 months before starting it. Lime (1972) also found considerable pre-planning of trips by campers. Perhaps surprisingly, he found that 80 percent of the campers selected a campground before they left home. Also, less than 20 percent selected a campground on the basis of circumstance or a lack of awareness of other places to camp in Superior National Forest. Such findings are particularly relevant to the proposed study since one of the major study objectives is to make prior campground information available to Parkway visitors. Of course, a major consideration will have to be the degree to which weekend or transient campers make use of pre-planning information as compared to vacation-oriented campers.

A similar state level camping study to Green and Wadworth's was that of Bond and Ouellette's (1968) on characteristics of Massachusetts campers. Their work is related to the Parkway study in that they analyzed the data according to public and private campgrounds. They found the five most common reasons given for selecting both private and public areas were: swimming, scenery, summer living, historical interests, and seashores. However, they did find many differences between the campers of publicly and privately operated areas. Distinction between public and private facilities was also found by LaPage (1967) to be an element that enters into the campers selective process in the determination of a site for camping. In LaPage's study, perceived differences were reported among campers on the basis of administration and financing of sites. Campers correlated with private campgrounds better facilities and reserved campsites, whereas, with public sites they associated better maintenance and more economical charges for utilizing the area.

Another approach to campground use and selection research has involved the attributes of the resource itself, including both activities-facilities and physical site characteristics. Lime's (1971) extensive study of factors influencing campground use in Superior National Forest examined 74 variables that the author felt might affect intensity of use. These variables were divided into three categories: location, natural, and man-made environments of the campgrounds. "Closeness to other recreational attractions" was most important as a location factor; "fishing" was reported most often in the natural category; and "sight of water" and "well

screened sites" were important aspects of the man-made environment. Lime also found that "types of users" were important in determining the type of campgrounds they selected. He proposed that future research investigate the segregation of campers into meaningful user groups - weekenders versus vacationers, by type of sleeping accomodations, by type of choosers, and others. Lucas (1970) evaluated user preferences for campgrounds on two Michigan National Forests and found similar preferred campground attributes as did Lime in Minnesota. Campground size, yards of beach, and type of water location were the most relevant determinants.

Cordell and James (1972) examined camper preference at even a more detailed level by investigating physical characteristics of developed campsites within campgrounds. Three principle classes of data were obtained to describe the physical characteristics of campsites: (1) location relative to other campsites and general facilities in the campground, (2) arrangement of facilities within the family campsite, and (3) the amount and character of campsite vegetation.

Components of campground resources which have been shown from the reported studies to be important to campground selection, camper satisfaction, and length of stay can be summarized as follows:

Campground selection, satisfaction, and length of stay
- -campground facilities-activities
- -campground location and travel routes
- -campground size, spacing and vegetation between sites, fee, age of campgrounds
- -availability and accessibility to entertainment and outdoor sport recreation
- -waterfront and adjacent water-based recreation development near campgrounds
- -surrounding scenery
- -private versus public ownership

All of these major components, along with those outlined for the social aspects of camping, serve as categories for forming items to be included in a campground inventory checklist. In addition, standard checklist items typically found in Woodall's and Rand McNally's directories and SCORP reports will be considered when developing the inventory checklist.

RESEARCH PROPOSED

Based on the situation existing at the Blue Ridge Parkway, the approach proposed to solve the problem, and the information necessary to determine if the proposed approach is a viable management alternative, the following objectives and procedure are offered.

OBJECTIVES

Part one of study:

1. To inventory and describe campgrounds by location, ownership, style of camping, facilities-activities available, and on-site as well as near-site characteristics which exist on and 10-miles either side the total length of the Blue Ridge Parkway.

2. To develop the inventory data into a campground directory format that the National Park Service might print and make available to visitors.

Part two of study:

3. To sample campers using the existing Parkway campgrounds to ascertain their camping preferences, style, and the likelihood that they would be willing to use campgrounds adjacent to the Parkway if they had prior knowledge of them. How far visitors are willing to travel off the Parkway and what fees they are willing to pay for campground amenities will be determined.

4. To observe campgrounds on the Blue Ridge Parkway which have heavy use and to identify variables which contribute to the heavy useage.

5. To categorize types of campers and factors affecting campground selection for future use by National Park Service personnel in planning campgrounds.

PROCEDURE AND RESEARCH PROPOSED

Based on those variables and sources of variables identified

from the camping literature that affects camper preference and length of stay, and from certain variables commonly found in commercial campground directories, an inventory checklist will be developed. During 1979, a mail questionnaire containing the inventory checklist will be sent to all campground owners or managing agencies located on and 10-miles either side of the Parkway. A list of potential respondents to be forwarded a questionnaire will be identified from camping directories and other available sources. It is anticipated that two follow-ups (post cards) will be mailed in addition to the mailed questionnaire.

If the information desired for the campground inventory cannot be obtained via the mail interviews, then the inventory information will be generated from an on-site visit to a portion of the available campgrounds along the Parkway. A Rand McNally camp guide lists approximately 50 campgrounds in the study area, which means a representative sample should be obtainable from a 4 to 6 week on-site visitation period.

From the inventory data will be developed the descriptive campground information, the directory, and a classification of campgrounds according to prominent campground factors.

To meet objectives 3, 4, and 5:

With information from the Blue Ridge Parkway staff concerning geographic and use characteristics of Parkway campgrounds, a stratified sampling scheme will be used to select a representative sample of Parkway campgrounds in which campers will be systematically observed and asked to complete a short on-site preference questionnaire. The number of strata sampled will influence the number of campgrounds sampled and the sample size within each campground. It is envisioned that sampling will involve approximately 200-400 campers and involve weekend, weekday, and holiday campers. Comparative analyses will be made concerning characteristics of available campgrounds adjacent to the Parkway and the likelihood that Parkway campers would use such facilities. Factors identified as important contributors to heavy useage of certain Parkway campgrounds will be categorized and compared with adjacent Parkway campgrounds to determine if a "substitutability" situation exists.

CONCLUSIONS

Past campground research literature indicates that various

social and physical site factors influence campers' preference and selection of campgrounds. Prior information of campground location and characteristics have also been shown to be important in the selection process. It is anticipated that prior knowledge of this nature by Blue Ridge Parkway visitors concerning adjacent campground resources will decrease use of existing Parkway campgrounds. In addition, this same knowledge should offer campers a wider spectrum of camping resource-experiences.

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CAMPGROUND CARRYING CAPACITY:

GETTING THEORY TO WORK

Douglas M. Knudson
Department of Forestry and Natural Resources
Purdue University

A basic step in managing the natural resources used for recreation is to recognize their productivity for sustained yield of recreation opportunities. Selection of a site for development can be based partly on the resilience of the land to the use impacts. Once a site is selected, the goal of the manager is to provide for a balance of use and resource productivity. The limit to which the resource can be used and still provide similar recreation in the future is often called carrying capacity.

The concept of carrying capacity, much discussed and defined in the literature, is based on the fact that there are limits to the number of visitors an area can accommodate. Beyond these elastic limits, the site deteriorates irreparably.

Identifying the appropriate levels of use is a key management technique to managing within carrying capacity. To date, there are few useful techniques which are widely used to identify site deterioration in a systematic way. A major purpose of research on Indiana campgrounds over the past few years is to develop measurements which would sensitively and systematically indicate the impacts of campground use. This research is part of a larger, regional project in which site impacts are measured in Michigan, Ohio, Indiana, Illinois, Iowa, and Minnesota.

This paper summarizes some of the key findings of the work done so far.

The Mandate

The first nationwide outdoor recreation plan (BOR, 1973) called for federal, state and local governments to determine the carrying capacity of their recreation lands. This was to be followed

by instituting controls and new ways of managing the movement of people to ensure that use does not exceed capacity. The problem is in translating the theory into action.

Carrying capacity is highly complex on recreation areas. Four major elements exist: the visitor, the design, the resource, and management policy (Alldredge, 1973, Bury, 1976, Sudia and Simpson, 1973). They interact and intertwine.

In this report, the natural resource base and the visitors are the variables most intensively examined.

The Research Effort

The Purdue research program on carrying capacity has involved several facets of the subject. Burgette (1975) studied a method of monitoring nature preserves for vegetation changes. His ideas were used in developing a system for campground use, devised by Burger (1975) and Butler and Knudson (1977). Burger studied quantification of impacts on 26 campgrounds on various soils throughout Indiana. Herbert (1974) studied the methods of determining the amount of visitor use to state parks, a short-coming of existing data systems. Butler and Knudson (1977) worked on two campgrounds, studying soils, vegetation, and camper opinions. Meanwhile, Madden and Knudson (1978) continued to devise a method for accurate estimates of park visits and Winegar and Knudson (1978) reviewed methods of estimating lake carrying capacity. So far, the ideal, simple, precise method has not been developed. However, it has been determined that certain resource measurements are good indicators of early stages of deterioration and that visitors are not reliable indicators of site conditions.

The research program has produced a workable method for monitoring campsite conditions, but field tests suggest that the method might benefit from more streamlining. The general results are summarized below.

Impacts on the Resources

The first step in evaluating carrying capacity is to determine the impacts which occur. That is the goal of the regional project. A major limitation has been in the unavailability of accurate data on campsite use.

Complex physical and biological impacts occur on a site when campers use it. Ground cover loss, soil compaction and soil loss were found to be measurable detrimental impacts on the physical and esthetic conditions of campsites (Burger, 1975). Shrub and tree cover also suffer, but withstand abuse longer than the soil and ground vegetation. However, in old campgrounds in Indiana, 15-18% of the trees larger that 5.5" d.b.h. had 50% or more of their trunk circumference visibly damaged.

Table 1 indicates resource damage to the ground cover in campgrounds at Versailles State Park (old and new) and the old, shaded campground at Turkey Run State Park in Indiana.

Table 1. Bare Ground and Disturbed Ground Cover Percentages of Surface on Campsites

% Bare	n=74 Vers. Old	n=66 Vers. New	n=140 Turkey Run Old
0	12.2%	24.2%	0
25	24.3	50.0	0
50	40.5	19.7	0.7%
75	10.8	6.1	20.0
100	12.2	0	79.3

Impacts were found to be greater on forested than on open sites. In moderately and heavily used open sites, the ground cover was more than twice as durable as in forested sites, over all types of soils. These estimates were based on line intercept measurements along three radii for each site.

Ground cover composition was much altered in the forested sites from comparable nearby areas which were relatively undisturbed. The presence of forbs, shrubs, and litter in the forested sites was greatly reduced. Grass, however, was not severely affected by use.

Soil compaction, measured by bulk density, increased significantly with increases in use levels, from light through heavy.

Visitor Reactions

Camper surveys at Versailles and Turkey Run State Parks involved 405 randomly selected campers throughout the summer (Table 2). Vegetation conditions ranged from vigorous new grass

Table 2. Camper Opinion of Campsite Ground Cover Conditions

	n=75 Vers. Old	n=66 Vers. New	n=139 Turkey Run Old
Very poor	2.7%	1.5%	13.7%
Poor	20.0	10.6	29.5
Satisfactory	38.7	53.0	46.8
Good	37.3	30.3	7.9
Excellent	1.3	4.5	2.2

to bare, eroded soil. Most campers did not find ground cover condition or tree damage to be a problem, even in the seriously deteriorated campground at Turkey Run. They were somewhat more sensitive to ground cover than to trees; only 30% noticed damage to trees.

This suggests that campers are not sensitive indicators of site deterioration. Only one person in seven was quite discomfited by a critically impacted campground.

However, the visitors endorsed measures to protect and restore campground health, at least in general. Campers strongly favored 1) closing parts of campgrounds each season to improve conditions and 2) cutting weak, unhealthy or damaged trees.

Toward a Workable Approach to Monitoring

For the campground manager to intelligently and convincingly allocate use controls and apply cultural practices, it is necessary to have an information system which monitors campsite conditions.

After testing several indicators of site deterioration, it was concluded that ground cover, or its lack, is perhaps the most useful and important indicator of recreation site quality. It is sensitive to use impacts, showing effects before trees or simple-to-see soils measures. It can be correlated with use loads.

There is a need for more precise use measures, at least for future research.

To monitor ground cover, the manager should use a sample of indicator campsites. On these, measurements are taken periodically, e.g. every year at the same season or every two years. A permanent plot center is established, such as a corner of a fire grate. Three radii are run out from this point. The first is parallel to the parking spur or perpendicular to the road. The others are 120 degrees off the first. Along each radius, ground cover percentage is calculated according to the % of total inches intercepted, using forbs, grass, moss and lichens, bare, litter, and other ground covers.

Along line 1, species are recorded, using 1/4 sp. meter plot frames. Starting at the center, the square plots are measured for 10 continuous meters. In each plot, the two dominant species below 3 feet elevation are recorded, along with % of cover they provide, % bare ground, litter, grass, herbaceous and woody plants, to the nearest 10%.

Careful mapping of the plots and recording of the bearings of the sample lines are important. On repeat visits, the lines should be reestablished exactly where the first line was set up. If there have been changes in the location of the plot center, the process may have to be reinitiated.

These same radii can be used for measurements of trees, shrubs and soils, if the administrator feels that it is desirable to monitor changes in conditions of these as well. Field data sheets should be developed with the scope of measurements included.

This system has been used by Purdue students with apparent success and little difficulty in adapting to the system. After a crew understands the system, the measurements can be completed in fairly rapid time, depending on site conditions and plant identification abilities. If more than ground cover is to be measured, the time of measurement is increased.

Application of this system and its further testing should produce a useful approach to applying carrying capacity theory.

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A CASE STUDY OF THE EFFECTS OF CAMPING ON THE SOIL, LITTER AND VEGETATION OF A CRAB ORCHARD LAKE CAMPGROUND

Carl A. Budelsky and Dennis D. Foss[1/]

Introduction

An important consideration to the development and maintenance of a site for recreational purposes is the impact of the recreational activities on the site. Usage, the reason for developing a quality recreational experience, may initiate a series of changes that ultimately destroy the quality of the experience. Several investigators have examined this problem; LaPage (1962), Ripley (1962), Dotzenko, et al. (1967), McCool, et al. (1969) and Settergren and Cole (1970).

The study to be described differs somewhat from earlier investigations, by focusing on the following objectives: (1) to evaluate visual inspection as a means of adequately assessing the extent of deterioration to a site used for recreational camping, (2) to identify the location and intensity of deterioration to a recreation site, and (3) to focus on characteristics of deterioration that possibly may be corrected or repaired. The information presented should further the understanding of physical deterioration to a recreational site within one more assemblage of environmental conditions.

Site Description and Methodology

Three areas were selected for study from a campground within the Crab Orchard Wildlife Refuge, approximately 6 miles east of Carbondale, in southern Illinois. One area, camping unit 108, lacked electrical outlets and was utilized primarily for tent camping. Camping unit 84 was utilized primarily by camping trailers due to the presence of electrical outlets. The third area, unnumbered and unused, was approximately midway between the two camping units and was utilized in the study as a control for purposes of comparison.

Both camping units contained one parking pad, one stationary grill and one movable picnic table. Although the campground was not officially opened until 1964, the general area had been a favorite camping site of the local inhabitants for many years

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1/ The authors are Assistant Professor of Forestry, Southern Illinois University at Carbondale and Lake Manager, U.S. Army Corps of Engineers, respectively.

prior to 1964. Thus some of the data presented may reflect the accumulated influence of twenty-three or more years of usage.

All areas are characterized by a dense overstory of shortleaf pine (Pinus echinata Mill.) that were planted during the early 1940's. Crown closure is 80% or greater and creates dense shade during most of the day. Some differences in basal area values of the overstory exist between study sites (108 to 198 sq. ft./A), due to past tree removal. It was not possible to determine if the trees were removed to create space for the parking pad, tent, table and grill, or if the trees died, were removed and the space utilized for these facilities.

The terrain is level and similar for each site. Soil type is either Hosmer silt loam or Stoy silt loam. Both are characterized by high moisture storage capacity and moderate permeability to either infiltrating water or root development. The presence of a fragipan in both soil types may restrict root penetration to approximately the upper 3 ft. of soil.

Each of the camping sites and the control area were stratified into categories of deterioration intensity or intensity of usage. Henceforth in this paper the terms will be used interchangeably. Six levels of deterioration intensity were utilized in the stratification procedure: very heavy, heavy, medium, medium light, light and very light. The unused area served as a control or as a seventh treatment of minimum use. Each category was arbitrarily assigned from visual evaluations of vegetational occurrence and the degree of litter disturbance, with the intent to delineate the camp site as it might be viewed by a recreation manager.

In order to evaluate the adequacy of the visually determined use intensity categories, information was collected to quantify the characteristics of the soil, litter and vegetation. Four sampling points were established randomly in each use category and four in the unused area. The Uhland core method (Black, 1965) was initially utilized to collect soil at each sampling location throughout the summer use season, from which bulk density values were determined to ascertain the degree of compaction resulting from the recreation activities. The paraffin clod method (Black, 1965) replaced the core method when it appeared that questionable bulk density values were derived from samples taken during periods of low soil moisture. A one square foot litter sample was removed at each sampling site, the material ovendried and weighed in order to describe the distribution of litter in each use category. A one percent area sample was taken of the ground vegetation present in each use category and the data expressed as a percent coverage for grasses and vines. The number of stems was recorded for the upright, single-stemmed plants and tree seedlings.

The habits of the campers using the areas were observed frequently in order to enhance the interpretation of the physical data collected.

Results and Discussion

Bulk density values obtained from the Uhland core method showed differences between areas of different use intensity, however, the average values obtained followed a declining trend as the recreation use season progressed. Site deterioration or compaction, as indicated by bulk density measurements, would be expected to increase, rather than decrease, with continued recreational activity. Figure 1 reveals the existence of a highly significant direct relationship between bulk density values obtained by the Uhland method and anticedent soil moisture. The decreasing trend in bulk density values may be attributed largely to shattering of the soil samples when they were extracted during a period of low soil moisture. Soil samples obtained by the clod procedure exhibited no apparent indication of shattering and the bulk density values obtained from them seemed independent of soil moisture conditions. Bulk density values obtained from the clod sampling procedure were found to be approximately 6 to 8 percent greater than coicident values derived from the Uhland core samples during periods of moderately high soil moisture. Thus if deterioration to a site is to be estimated on the basis of changes in bulk density values of the soil, the method selected to obtain the samples may be critical, particularly for certain soil types and conditions.

Table 1 summarized the data collected from the three study areas, showing changes in bulk density of the soil at three depths, litter accumulation and vegetative characteristics for the use intensity categories examined.

Approximately 45 percent of the total area encompassed by the six levels of use intensity was grouped into the very heavy and heavy use categories, most of which occurred surrounding the grill or coincided with the location of the tent. Well defined pathways to nearby facilities developed during the recreation season and were included in the latter two categories. Although inconclusive, due to the mobile nature of the picnic tables, recreational activities centered about the table seemed to be identifiable with the deterioration categories of medium, heavy, and very heavy.

The trend of bulk density values, derived from the clod sampling method and shown in Table 1, corresponds closely with the categories of use intensity. As the apparent severity of use intensity decreased, bulk density or compaction, as a measurement of deterioration, also decreased. However, the

FIGURE 1

The Relationship of Soil Bulk Density
(Core Method) to Per Cent Soil Moisture

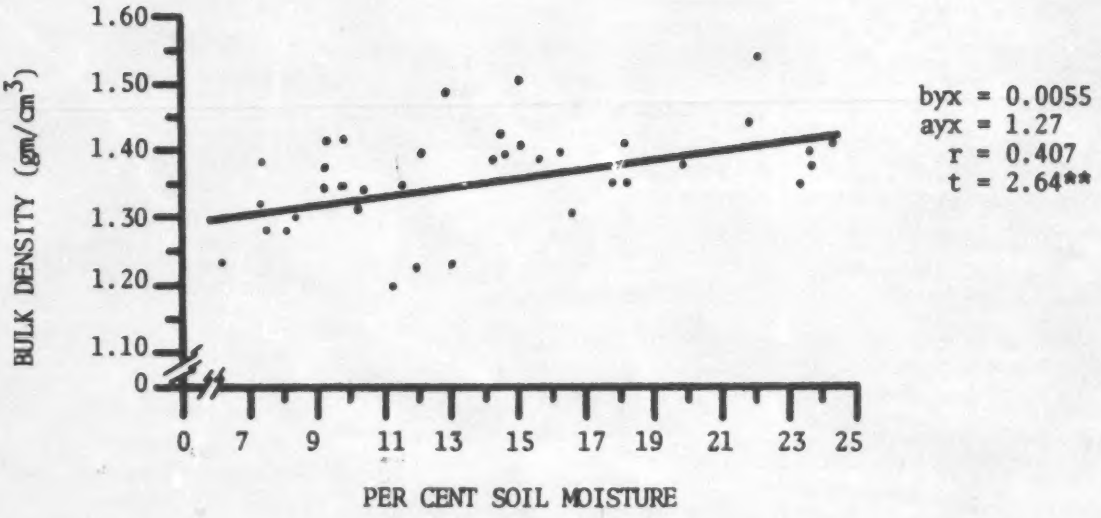


Table 1

Summary table comparing categories of use intensity, treatment size, bulk densities (clod method) at the 0-1 inch and 6 inch soil depths, mean litter weight, per cent vegetative coverage, number of vegetative stems and overstory basal area.

Categories of Use Intensity	V.H.	H.	M.	M.L.	L.	V.L.	C.
Treatment Size (sq. ft.)	1881	1638	944	1227	941	1229	4368
Mean Bulk Density (0-1 inch) (gms/cm^3)	1.58	1.55	1.52	1.46	1.44	1.44	1.38
Mean Bulk Density (3 inch) (gms/cm^3)	1.46	1.42	1.46	1.41	1.37	1.38	1.36
Mean Bulk Density (6 inch) (gms/cm^3)	1.41	1.43	1.48	1.33	1.38	1.35	1.35
Mean Litter Weight (gms)	19.4	14.4	24.7	50.2	47.9	63.5	171.9
Per Cent Vegetative Cover	0	0	17.8	16.3	59.0	1.0	38.3
Number of Vegetative Stems	0	38	22	56	63	112	0
Overstory Basal Area (sq. ft./A)	108	146	108	146	108	146	198

closest relationship between these two variables occurred at the soil surface location. In addition to the direct relationship found between use intensity and soil bulk density, an inverse relationship was found between bulk density values and increasing soil depth when examined across the use intensity categories. Although the soil depth - bulk density profile from the nonused (control) area was gradual and small in magnitude, an abrupt difference in bulk density values occurred with increasing soil depth on the heavier used areas. The most apparent discontinuity occurred between the surface bulk density values and those sampled from the 3 inch depth. Thus, on these sites, the areas of greatest recreational usage received the most soil compaction. However, the greatest degree of compaction was concentrated in the upper inch of soil, rather than extending to greater soil depths, as was found by Dotzenko, et al. (1967) for recreation sites in Rocky Mountain National Park. Undoubtedly, differences in soil texture between the two locations explains much of the difference in results and is an important influence on the degree and depth to which soils may be affected by heavy usage.

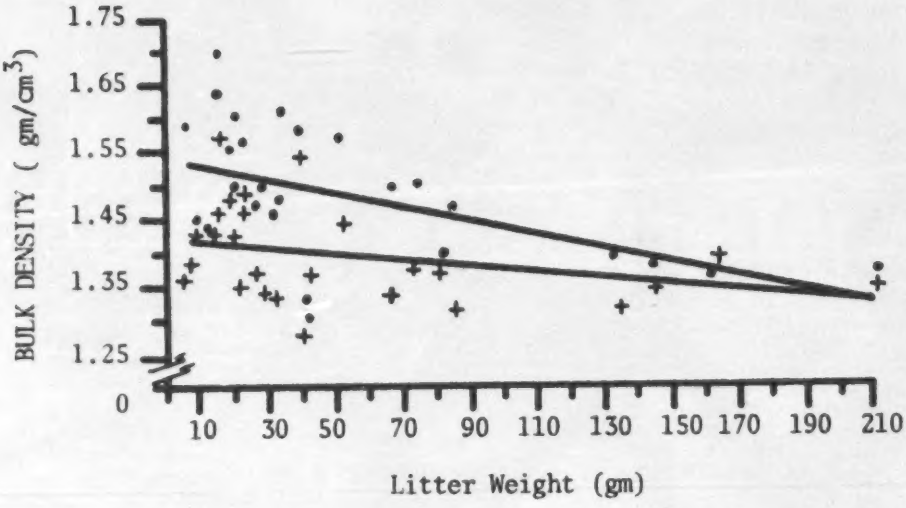
Bulk density measurements were taken with the clod method during the following Spring from the original sampling points in an effort to determine whether the natural overwintering forces of freezing and thawing had decreased the density of the surface compaction layer. Surface bulk density values for the two most heavily used areas were found to have decreased from 1.58 gm/cm^3 to 1.51 gm/cm^3 and from 1.55 gm/cm^3 to 1.46 gm/cm^3, or an average decrease of 4%. This information suggests a carry-over or accumulating effect of deterioration from one season to another.

An inverse relationship between litter weight or vegetative cover and the categories of use intensity is discernible in Table 1. As the intensity of usage increased, the amount of litter accumulation and the extent of vegetative cover generally decreased, although, in the latter case, the clarity of this relationship is somewhat muted by the interacting influence of overstory density. The occurrence of such a relationship is expected because both litter accumulation and vegetative cover characteristics were subjectively incorporated into the use classification system.

Figures 2 and 3 provide more detail than Table 1 of the relationship of litter accumulation and extent of vegetative cover to bulk density values. The inverse relationship of litter weight and percent vegetative cover to surface bulk density is statistically significant at the 1 percent level of confidence, but is not significant when tested against bulk density values obtained at the 6 inch depth. The data suggests that the adverse

Figure 2

The Relationship of Soil Bulk Density, at the Soil Surface and Six Inch Depth, to Litter Weight



Surface Layer (·)

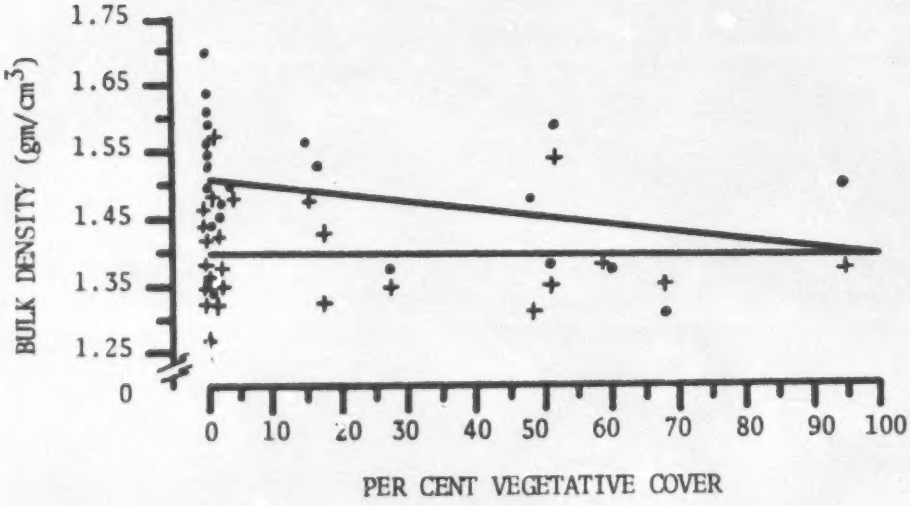
byx = -0.0097
ayx = 1.54
r = -0.566
t = 3.366**

Six Inch Depth (

byx = -0.00047
ayx = 1.42
r = -0.317
t = 1.64

Figure 3

The Relationship of Soil Bulk Density, at the Soil Surface and Six Inch Depth, to Vegetative Cover



Surface Layer (·)

byx = -0.0012
ayx = 1.50
r = -0.346
t = 1.77**

Six Inch Depth (

byx = -0.00026
ayx = 1.40
r = -0.075
t = 0.368

impact of usage on the soil characteristics of the site develops after the protective shield of litter and vegetation have been destroyed. The data also substantiates the fact that the most extensive compaction of the soil is restricted to the surface layers. Variation in the regression analysis, which is substantial, may be largely explained on the basis of natural variation in soil conditions from one sample site to another and by the rather random pattern of use concentration displayed by different recreationists on the same camping area.

The very close relationship found in this investigation of soil compaction, litter accumulation and extent of vegetative cover to intensity of usage supports the conclusion that a recreation manager can, with a reasonable degree of accuracy, visually identify symptoms and mentally synthesize zones of deterioration within a recreation area. The accuracy of the diagnosis will probably be greatest for zones of greatest impact because the visual signs of deterioration are more numerous and more apparent. However, supplementary measurement techniques are necessary to determine the extent, location and importance of the deterioration symptoms, particularly those involving soil characteristics.

The greatest impact of recreational usage for this campground was identified by quantitative procedures as being concentrated in a narrow zone parallel to the soil surface. In this instance, the problem of deterioration can be greatly diminished by use of mechanical aeration techniques, periodic redistribution of the naturally occurring litter or application of artificial protective materials and reduction in the density of the pine overstory. The quantification of deterioration characteristics may not always provide a simple corrective procedure, but without such information, a subjective evaluation may lead to a misunderstanding of the conditions and possible lack of efficient corrective action.

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